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BOTANICAL SERIES

FIELD MUSEUM OF NATURAL HISTORY

FOUNDED BY MARSHALL FIELD, 1893

VOLUME XIII

FLORA OF PERU

PART VI, No. 2

BY

J. FRANCIS MACBRIDE

ASSOCIATE CURATOR, HERBARIUM, DEPARTMENT OF BOTANY

B. E. DAHLGREN

CHIEF CURATOR, DEPARTMENT OF BOTANY
EDITOR

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FLORA OF PERU

J. FRANCIS MACBRIDE

PLANTAGINACEAE. Plantain Family

By R. Pilger

Reference: Pflanzenreich IV. 269. 1937.

Annual or perennial herbs, or suffrutescent; leaves mostly rosulate, alternate, or rarely (in subgenus *Psyllium*) opposite. Flowers in axillary spikes, solitary in the axils of sessile bracts. Sepals 4, alternating with the bracts. Corolla scarious, actinomorphic, with a short tube and 4 mostly expanded or reflexed lobes. Stamens 4, the filaments slender, the anthers versatile. Ovary superior, 2-celled or in *Bougueria* 1-celled, the ovules 1-many in each cell; style 1; stigma simple. Fruit a transversely circumscissile capsule or in *Bougueria* a 1-seeded, indehiscent nutlet.—Species about 250, dispersed throughout the world.

Capsule at maturity circumscissile at the middle or below, the upper portion deciduous; seeds 2-many.....1. *Plantago*.
Fruit an indehiscent nutlet with 1 curved seed.....2. *Bougueria*.

1. PLANTAGO L.

For diagnosis see the description of the family.

Key to subgenera and sections

Leaves alternate, mostly rosulately congested.

Subgenus I. *Euplantago* Harms.

Ovules and seeds always 2, rather large, the hilum side concave.

Anterior sepals connate; peduncles sulcate; bracts elongate, narrowed.....Sect. 6. *Arnoglossum*.

Anterior sepals free; peduncles not at all sulcate; bracts obtuse or little narrowed; leaves linear.... Sect. 5. *Leucopsyllium*.

Ovules 3-many.

Ovules (6-)8-many; seeds angled; rhizome short; leaves conspicuously petioled; spikes elongate...Sect. 1. *Polyneuron*.

Ovules 4 or more; stems simple or multiparted, cespitose or forming cushions; peduncles short to nearly obsolete, the spikes few-flowered or the flowers reduced to 1.

Sect. 4. *Oliganthos*.

Ovules 3; seeds flat on the hilum face; flowers open (mostly the staminate) or closed, the corolla tube of the closed flowers short; anthers minute; annuals or perennials, not at all or scarcely branched, with lanceolate to elliptic leaves.

Sect. 2. *Novorbis*.

Ovules 3-4; seeds plane; flowers open or closed; bracts very broad; anterior and posterior sepals little diverse; plants small, with short, thick rhizomes. . . . Sect. 3. *Oreophytum*.

Leaves opposite. . Subgenus II. *Psyllium* Harms; Sect. 7. *Psyllium*.

Sect. 1. *Polyneuron* Dcne. in DC. Prodr. 13, pt. 1: 694. 1852.
A single species in Peru. *P. major*.

Sect. 2. *Novorbis* (incl. *Cleisantha*) Dcne. in DC. Prodr. 13, pt. 1: 724. 1852.

Plants small, annual, with slender, rather elongate roots.

Bracts triquetrous-lanceolate; leaves lanceolate, rather thin.

P. myosuros.

Bracts ovate; leaves oblanceolate, somewhat rigid. . . *P. humilior*.

Plants larger, perennial or sometimes flowering the first year; primary root usually disappearing ultimately.

Rhizome short.

Posterior sepals rotund-ovate, obtuse; leaf teeth often bidenticulate. *P. Durvillei*.

Posterior sepals broadly ovate or rotund-ovate, abruptly pointed; leaves scarcely denticulate. *P. hirtella*.

Rhizome relatively elongate. *P. oreades*.

Sect. 3. *Oreophytum* Dcne. in DC. Prodr. 13, pt. 1: 644. 1852.
A single species in Peru. *P. Orbignyana*.

Sect. 4. *Oliganthos* Barnéoud, Monogr. Plantag. 17. 1845.
Sepals connate below; plants not pulvinate. *P. tubulosa*.
Sepals free; plants pulvinate. *P. rigida*.

Sect. 5. *Leucopsyllium* Dcne. in DC. Prodr. 13, pt. 1: 704. 1852.
Plants annual, small, stemless.

Bracts about half as long as the calyx, roundish-ovate; leaves filiform. *P. Macbridei*.

Bracts two-thirds as long as the calyx, ovate; leaves linear-lanceolate or lanceolate. *P. limensis*.

Plants perennial, sometimes suffruticose.

Corolla lobes shortly narrowed from a broad base, shortly acute or apiculate-acute.

Plants strongly ligneous or shrubby, the branches thick; peduncles shorter than or about equaling the leaves.

P. polyclada.

Plants stemless or little branching, glabrous or sparsely pilose.

Bracts broadly rounded above.....*P. amblyacme.*

Bracts elliptic-ovate, narrowed above.....*P. linearis.*

Corolla lobes obtusely rounded, often emarginate, rarely narrower and narrowed but never acute.

Plants definitely ligneous to suffrutescent, the branches more or less elongate.

Peduncles rather elongate; leaves very narrowly linear; plants laxly branched.....*P. sericea.*

Peduncles short; leaves to 2 mm. wide; plants densely cespitose.....*P. extensa.*

Plants less ligneous, sparsely or shortly cespitose-branched.

Leaves only 3-8 mm. long; peduncles extremely short, the spikes strongly reduced.....*P. Godeti.*

Leaves longer.

Peduncles conspicuously and densely villous-tomentose, the spikes slightly pilose.....*P. tarratothrix.*

Peduncles variously pubescent but the indument less developed.

Leaves spatulate-linear, silky-villous; plants diminutive.
P. lamprophylla.

Leaves linear to very narrowly linear.

Leaves glabrescent, with some long, fine hairs below, subfiliform; peduncles to 20 cm. long. .*P. congesta.*

Leaves, at least the younger, densely pilose; peduncles short.

Sepals lance-ovate or the posterior elliptic-ovate; leaves very narrow, densely silky-pubescent; plants small.....*P. Weberbaueri.*

Sepals broader.

Leaves nearly filiform, flexuous and reflexed in drying, silky-villous.....*P. compsophylla.*

Leaves narrowly linear, not at all flexuous, mostly finally glabrescent, usually sulcate above.

P. monticola.

Sect. 6. **Arnoglossum** Dcne. in DC. Prodr. 13, pt. 1: 714. 1852.

One species adventive in Peru *P. lanceolata*.

Sect. 7. **Psyllium** Dcne. in DC. Prodr. 13, pt. 1: 733. 1852.

One species adventive in South America *P. Psyllium*.

Plantago amblyacme Pilger, Repert. Sp. Nov. 15: 421. 1919.

Perennial, the rhizome short or very short, with one many-leaved rosette or several densely aggregate ones; leaves somewhat coriaceous, narrowly linear-lanceolate, glabrous or the younger ones sparsely villous, 8–13 cm. long, 2.5–3.5 mm. wide; inflorescences few, the erect peduncles 10–22 cm. long, the short, cylindraceous, dense spikes 2–3.5 cm. long; bracts attaining three-fourths the length of the calyx, elliptic, broadly rounded at the tip, 2.5–3 mm. long, with prominent, broad keel; sepals 3 mm. long, the anterior obovate, emarginate, the posterior rotund-elliptic, concave, strongly keeled; corolla lobes rotund-ovate, minutely apiculate, slightly brownish-spotted at the base, 2.5 mm. long.

Piura: Cordillera west of Huancabamba, 3,200 meters, *Weberbauer* 6047, type.

Plantago compsophylla Pilger, Bot. Jahrb. 37: 644. 1906. *P. congesta* R. & P. ex Pilger, op. cit. 62: 77. 1928, non *P. congesta* R. & P. Fl. 1: 51. 1798.

A perennial with rather slender root, short, lignescent, simple or shortly branching stem, and densely congested leaves, these at first erect, flexing or reflexing in age, narrowly linear, 6–10 cm. long, ashy white with a silky-villous indument; inflorescences few, the peduncles 11–15 cm. long; bracts two-thirds as long as the calyx, broadly ovate, obtuse, minutely villous; sepals 3 mm. long, glabrescent, the anterior obovate-elliptic, strongly carinate, the broadly elliptic posterior ones with thick, rather narrow keel; corolla lobes broadly ovate, obtuse, 2.5 mm. long, with broad, concurrent, brown striae from the base nearly to the tip. Neg. 14155.

Junín: Mountain east of Palca, 2,700–3,000 meters, *Weberbauer* 2448, type; 248.

Plantago congesta R. & P. Fl. 1: 51. pl. 79. 1798. *P. Dombeyi* Pilger, Bot. Jahrb. 62: 76. 1928.

A stout-rooted perennial with short, densely congested, ligneous branches or more or less laxly branched, ligneous stems; leaves crowded at the tips of the branches, somewhat rigid, straight or arcuate, very narrowly linear, flat, 5–11 cm. long, to 1.5 mm. wide, hairy, especially below, with long to very long trichomes; peduncles 8–25 cm. tall, long-pubescent toward the base, the short-cylindric spike 2 cm. long; bracts about two-thirds as long as the calyx, ovate, 3–4 mm. long, the back above slightly short-villous, the keel rather narrow; sepals 3–4 mm. long, the anterior narrowly elliptic, the posterior ovate to rotund-elliptic; corolla lobes ovate, obtuse, with brunnescent spots and nearly percurrent striae, 2.5–3.5 mm. long; seeds brown, 3 mm. long.—Ruiz and Pavón give the type locality as Province of Tarma, in the hills about Huichay, Morocamcha, and Camcham; in their collections at Madrid is a specimen labeled simply "Tarma." Negs. 29599, 14156.

Ancash: Between Samanco and Huaraz, 3,000–3,500 meters, *Weberbauer* 3152.—Lima: Stony places, 2,700 meters, Matucana, 340. Río Blanco, 3,600 meters, 689. Huánuco: Stony slope, Yanahuanca, 3,300 meters, 1240.—Without locality, *Dombey* (Herb. Kunth).

Plantago Durvillei Del. ex Fisch. & Mey. Ind. Sem. Hort. Bot. Petrop. 3: 45. 1837; *Linnaea* 12: Litt. Ber. 105. 1838. *P. pachyneura* Steud. ex Pilger, Bot. Jahrb. 62: 17. 1928.

Leaves narrowly elliptic, above mostly shortly widened, either broadly cuneate or arcuately narrowed, below usually narrowed into a short, rather broad petiole, generally conspicuously dentate, the teeth often bidenticulate; spikes dense above; bracts lance-elliptic or ovate-elliptic; anterior sepals elliptic or obovate-elliptic, the posterior ones rotund-ovate or nearly rotund; seeds 3, elliptic, 2 mm. long or slightly longer.

The species extends from Chile to southern Peru, appearing again in California, with scattered localities in Ecuador and Mexico.

Plantago Durvillei Del. subsp. ***Pflanzii*** Pilger, comb. nov. *P. Pflanzii* Pilger, Notizbl. Bot. Gart. Berlin 5: 261. 1912. *P. pachyneura* Steud. subsp. *Pflanzii* Pilger, Bot. Jahrb. 62: 18. 1928.

Root usually not at all evolute; leaves to 20 (–30) cm. long, slightly or conspicuously dentate, more or less short-villous, often rather white-ciliate marginally; peduncles stout, the spikes elongate; bracts and sepals ciliolate, the latter 3 mm. long.

Lima: Matucana, 2,400 meters, 181, 397.—Huánuco: Moist places, Mito, 3,000 meters, 1428.—Cuzco: Sacsahuamán, 3,200 meters, Herrera 207. Cultivated lands, Cuzco, Herrera 292. "Sackarara."

Plantago Durvillei var. **grandidens** Pilger, comb. nov. *P. Pflanzii* Pilger, var. *grandidens* Pilger, Bot. Jahrb. 50: 267. 1913. *P. pachyneura* Steud. subsp. *Pflanzii* Pilger, var. *grandidens* Pilger, op. cit. 62: 19. 1928. *P. rectirostris* Wallr. ex. Walp. Nov. Act. Acad. Caes. Leop. Carol. 19, Suppl. 1: 401. 1843.

Leaves broader, elliptic or even broadly elliptic, 5–8, rarely 8–15 cm. long, most often prominently and irregularly dentate; peduncles 7–19 cm. long, the spikes 4–19 cm. long.

Lima: Southwest of Matucana, 2,500 meters, Weberbauer 172.—Puno: Meyen.

Plantago extensa Pilger, Bot. Jahrb. 37: 644. 1906.

A perennial with a thick, woody root, the short, stout branches congested into low, dense mats; leaves rigid, narrowly linear, 3–7 (–10) cm. long, to 2.5 mm. wide, densely ashy-silky-pilose; peduncles mostly shorter than the leaves, the rather few-flowered spikes 1–1.5 (to nearly 2) cm. long; bracts silky-villous, triquetrous-ovate, 3 mm. long; sepals villous, 4 mm. long, the anterior ones elliptic, the posterior ones broadly or roundish elliptic; corolla lobes rotund-ovate or rotund-elliptic, 3 mm. long, with deep brown striae from base to tip. Neg. 14157.

Junín: Between Tarma and La Oroya, 3,600–4,200 meters, Weberbauer 2557, type. Valle de Tarma, Nov. 29, 1863, Isern. Stony slope, La Oroya, 4,000 meters, 977.

Plantago Godeti Beauverd, Bull. Soc. Bot. Genève II. 14: 181. f. 14. 1923; Pilger, Notizbl. Bot. Gart. Berlin 10: 835. 1929.

Young plants forming little cushions, the adult ones becoming laxly branched, diminutive shrubs about 8 cm. high; branches densely clothed with the remains of the sheaths; leaves congested at the tips of the branches, only 3–8 mm. long, thickish, densely pubescent with a white-ashy-silky indument; spikes almost obsoletely pedunculate, greatly reduced, only 2-flowered; bracts rotund-ovate, 3 mm. long; sepals nearly 3 mm. long, the anterior ones obovate-elliptic, the posterior ones rotund-obovate; corolla lobes ovate, shortly narrowed, 2 mm. long.

Huancavelica: At about 4,000 meters, Huarón, Godet, type.—Ancash: Pueblo east of Huaraz, on dry, stony slopes, 3,150 meters, 2503.

Plantago hirtella HBK. Nov. Gen. & Sp. 2: 229. 1818, emend. Pilger, Bot. Jahrb. 50: 274. 1913.

Rhizome short, the root soon disappearing; leaves rosulate, 10–12, rather thin, narrowly elliptic or narrowly obovate-elliptic, 8–25 (–30) cm. long, 3.5–6 cm. broad, subentire or somewhat denticulate, subglabrous or villous; spikes few, slender, lax below, 12–25 cm. long, the peduncles 12–30 cm. high; bracts narrowly ovate-lanceolate, 2.5 mm. long, sparsely pubescent with short trichomes, thick-keeled; sepals 2.2–2.7 mm. long, the anterior ones narrowly elliptic, bluntly carinate, the posterior ones broadly ovate or rotund-ovate, abruptly narrowed apically, the keel more or less acute; flowers closed or open, the lobes of the closed ones narrowly ovate, acutish, 2.7 mm. long, those of the open ones ovate or broadly ovate, 2.2–2.5 mm. long; seeds 3, elliptic, brownish olive or obscurely brown, 1.2–1.7 mm. long.—The area of distribution for the species extends from southern Brazil, Paraguay, and Argentina through the Andes to Mexico.

Huánuco: Montaña, Muña, 2,100 meters, 3912. Northwest of Mito, 3,300 meters, grassy uplands, 1932.—Cuzco: Valle de San Miguel, 2,000 meters, Herrera 1987. At 950 meters, in 1931, Bües. Huasao, 3,200 meters, edge of an irrigating ditch, Herrera 3018. Cuzco, Soukup 256.—Puno: Cancharani, Soukup 39. “Llantén,” “huacac-coallon.”

Plantago humilior Pilger, nom. nov. *P. humilis* Dcne. in DC. Prodr. 13, pt. 1: 724. 1852; Pilger, Notizbl. Bot. Gart. Berlin 10: 831. 1929, non *P. humilis* Jan.

Plants small, with a slender root and thickish, rather rigid, oblanceolate leaves to 4–5 cm. long, sparsely pilose to nearly glabrescent; peduncles short, with the very short spike shorter than the leaves, or the spike sometimes to 2 cm. long; bracts ovate or broadly ovate; sepals 2 mm. long, the anterior elliptic, the posterior rotund; corolla lobes ovate, 1.2–1.7 mm. long; seeds 3, pale olivaceous or brown, usually narrowly elliptic, 1.7–2 mm. long.

Lima: Canta, 3,100 meters, bare, rocky slope, Pennell 14592.—Puno: Chuquibambilla, 4,000 meters, Pennell 13374; ledges of limestone rock, 3,900 meters, Pennell 13404. Bolivia.

Plantago lamprophylla Pilger, Bot. Jahrb. 37: 645. 1906.

A low perennial with abbreviated, simple or little branched stems and small, dense, many-leaved rosettes; leaves thickish, spatulate-linear, 1–few, more than 2 cm. long, above to 2.5 mm. wide, densely whitish or yellowish sericeous-villous, finally more or less

glabrescent; inflorescences rather many, the peduncles about equaling the leaves, the small, ovoid-globose or globose spikes 5–7 mm. long; bracts ovate, about equaling the calyx, 4 mm. long, long-hirsute-villous; sepals 3–4 mm. long, copiously hirsute-villous, the anterior ones narrowly obovate-elliptic with thick keel, the posterior ones elliptic, the keel rather narrow; corolla lobes ovate-lanceolate, sub-acute, 2.2 mm. long; capsule broad, rounded apically; seeds brown, slightly shining, 2.5 mm. long.—Illustrated, Weberbauer, 204. Neg. 14161.

Lima: Casapalca, 5,000 meters, loose soil, 841. Alpamina silver mine, 4,500 meters, Weberbauer 5128.—Junín: In mats, Yauli, 4,400 meters, Weberbauer 292, type. In limestone between Tarma and La Oroya, 4,000 meters, Weberbauer 2537.

***Plantago lamprophylla* var. *humillima* Pilger, loc. cit.**

Tiny, the densely crowded leaves never exceeding 1 cm. in length, densely golden- or white-silky-villous; peduncles to 1 cm. long, or the spikes sometimes nearly sessile; bracts broadly ovate, 3.5 mm. long; sepals 3 mm. long.

Junín: La Oroya, 4,300 meters, Weberbauer 2603.—Puno: Huan-cayo, 4,700 meters, Killip & Smith 22092.

***Plantago lanceolata* L. Sp. Pl. 113. 1753.**

Commonly occurring in Europe, this species is widely adventive in South America. It is the source of an ingredient found sometimes in cough drops, and an extract of the plant is often employed as a gargle. *P. major* L. has the same properties.

Lima: Chosica, 900 meters, bank of irrigation ditch, 516. "Llantén."

***Plantago limensis* Pers. Syn. Pl. 1: 139. 1805. *P. hirsuta* R. & P. Fl. 1: 51. pl. 78. 1798, non *P. hirsuta* Gilib.**

An acaulescent annual with a slender root and few to many rosulate leaves, these linear-lanceolate or lanceolate, 3–11 cm. long, slightly undulate or remotely and obtusely denticulate, ashy with a somewhat sericeous, villous-lanigerous indument, the younger parts even floccosely lanigerous-tomentose; peduncles 4–19 cm. long, the short, cylindric spike to 6 cm. long; bracts about two-thirds as long as the calyx, ovate or triangular-ovate, strongly carinate like the sepals, these 4 mm. long, the anterior ones narrowly elliptic, the posterior ones narrower, elliptic, concave; corolla lobes narrow, linear-elliptic, acutish; seeds lustrous, obscurely fulvous, 3 mm. long. Neg. 14162.

Lima: Lurín, *Mathews*.—Huánuco: *Dombey*.—Junín: Tarma, *Ruiz & Pavón*.—Arequipa: Hills near Islay, *Isern* (det. Madrid). Mollendo, sandy places, loma, *Weberbauer* 1459.

Plantago limensis* f. *tenuior Pilger, Bot. Jahrb. 62: 45. 1928.

Slender, with narrow leaves 11–12 cm. long and 1–3 mm. broad, less copiously pubescent; peduncles to 17 cm. long, the spike few-flowered or to 2 cm. long.

Lima: Stony slope, Chosica, *Weberbauer* 5344. Stony slopes, 2,700 meters, Huaitara, *Weberbauer* 5417.

Plantago limensis* f. *minima Pilger, loc. cit.

Diminutive, the nearly filiform leaves little rosulate, 2–4 cm. long; spikes 1–2, the slender peduncles 4–6 cm. long, the spike 2–4-flowered.

Arequipa: Tambo near Mollendo, in the loma, *Weberbauer* 1577a.

Plantago linearis HBK. Nov. Gen. & Sp. 2: 229. 1818. *P. luzuloidea* Dcne. in DC. Prodr. 13, pt. 1: 710. 1852. *P. Barneoudii* Dcne. loc. cit.

Stem extremely short, from a rather slender root; leaves densely rosulate, moderately rigid, narrowly linear, 4 to about 10 cm. long, glabrescent or with a few white or whitish hairs; peduncles 6–11 cm. long, long-pubescent below, above, especially below the spike, hirsute-villous; spikes dense, to 2 cm. long; bracts cuneately narrowed from the ovate base, obtuse, lightly villous, with a broad, thick keel; sepals 2.5 mm. long, apically a little villous, the anterior ones obovate-elliptic, with a thick, broad keel, the posterior ones rotund-elliptic; corolla lobes rotund-ovate, 2 mm. long, obscurely spotted basally; capsule ellipsoid, the seeds oval, purplish brown, 2.5 mm. long.—The typical form of the species extends from Colombia to Peru; the species, sens. lat., ranges from Mexico to northern Argentina. Neg. 14163.

Huánuco: Mito, open, stony slope, 3,000 meters, 3353, 1804. Tambo de Vaca, 4,300 meters, 4375.—Puno: Agapata, *Lechler* 1821.

Plantago Macbridei Pilger, Notizbl. Bot. Gart. Berlin 10: 832. 1929.

A small annual with a slender root; leaves few, subrosulate, extremely narrow or filiform by the incurved margins, 3–6 cm. long, 0.5 mm. in diameter, glabrous; spike solitary, the slender peduncle finely pubescent, 5–11 cm. long, mostly with only 2 flowers; bracts

reaching about the middle of the calyx, broadly rotund, 2 mm. long; sepals 2.5 mm. long, glabrescent, the anterior ones broadly obovate, with a rather narrow keel, the posterior ones subrotund; corolla lobes narrowly ovate, narrowed, 2 mm. long; capsule ellipsoid, the dull, not at all lustrous seeds purplish brown, 2–2.3 mm. long.

Lima: Steep, stony slope, 2,600 meters, 478, type.

***Plantago major* L. Sp. Pl. 112. 1753.**

Plants medium-sized or larger, the ovate, more or less dentate leaf blades rounded at the base, 10–17 cm. long, the teeth small to large; petioles to 20 cm. long; peduncles 7–25 cm. long, the spike 4–13 cm. long, usually lax toward the base.—This description is for var. *paludosa* Béguinol, subvar. *incisa* Pilger, adventive in Peru, as the Tessmann collection. Cf. *P. lanceolata* L. for medicinal use.

Loreto: Middle Río Ucayali, *Tessmann 3181*. Iquitos, 120 meters, *Williams 3577*. Fortaleza, 200 meters, *Williams 4325*.—San Martín: San Roque, 1,400 meters, *Williams 7755, 6928, 7146*.—Cuzco: Machupicchu, *Herrera 3199*. A plant of Old World origin, widely naturalized in America. “Llantén.”

***Plantago monticola* Dcne. in DC. Prodr. 13, pt. 1: 711. 1852.**

A small or diminutive perennial, the flowering stems of the younger plants short and simple, becoming woody and densely to nearly pulvinately branched; leaves many, densely congested, narrowly linear, 2–11 cm. long, sulcate above by the recurving margins, the younger ones more or less densely white- or rather yellowish-silky-pilose, finally glabrescent or nearly so or in the groove somewhat pilose; peduncles 2–10 cm. long, the short spike ovate to short-cylindric; bracts two-thirds to three-fourths the length of the calyx, broadly ovate, 3 mm. long, lightly villous or glabrescent; anterior sepals elliptic or broadly elliptic, slightly villous, the keel thick; posterior sepals rotund-elliptic, the keel definitely narrow; corolla lobes ovate, obtuse, 2–2.7 mm. long; seeds dark reddish brown, 2.5 mm. long. Neg. 14166.

The type, from the Puno region, is *Weddell 4507*. The species is especially common in Bolivia and extends to northern Argentina and northern Chile; in Peru are several aberrant forms.

***Plantago monticola* Dcne. subsp. *sericans* Pilger, Bot. Jahrb. 62: 80. 1928.**

Leaves 5–12 cm. long, 1–1.5 (rarely to 3) mm. wide, retaining a rather dense, white or yellowish, silky indument; bracts more or less densely villous; sepals villous above, 3 mm. long.

Puno: Araranca, 4,100 meters, rocky, siliceous slope, *Pennell 13449, 13467*. Northern Argentina; Bolivia.

Plantago monticola* subsp. *Herrerai Pilger, Bot. Jahrb. 62: 81. 1928.

Larger, becoming densely caespitose; bracts narrowly ovate, 3.5–3.7 mm. long, moderately villous; sepals 3.5–4 mm. long, densely villous; corolla lobes 2–2.7 mm. long.—Illustrated, Herrera, Estudios Fl. Cuzco, two pls. opp. p. 172. "T'chsu-i'chsu."

Plantago monticola* var. *maiuscula Pilger, loc. cit.

Finally densely caespitose, the leaves more or less minutely silky-villous or in age glabrescent, to 15 cm. long; inflorescences numerous, the more or less erect peduncles to 20 cm. tall.

Cuzco: About Cuzco, *Herrera 174*; at 3,600 meters, *Herrera 3400*. Valle del Paucartambo, 3,500 meters, *Herrera 1827*.

Plantago monticola* var. *maxima Pilger, loc. cit.

Root woody, to 1 cm. thick; branches very short, densely fasciculate, thus forming large, extremely compact mats; leaves convolute from the margins, 1–1.5 mm. broad, or expanded to 2.5 mm. broad, to 20 cm. long, with a fine, close, lustrous but rather plentiful, ashy villosity, at length glabrescent; inflorescences many, the peduncles 15–25 cm. long.

Cuzco: Near Cuzco, 3,700–3,900 meters, *Herrera 488*.

Plantago monticola* subsp. *crispula Pilger, Bot. Jahrb. 62: 81. 1928.

Comparatively small, the leaves only 2–4 cm. long, more or less densely short-villous, slightly lustrous, finally glabrate; peduncles 2–4 cm. long, the spikes small.

Arequipa: Arequipa, 2,200–2,500 meters, *Guenther & Buchtien 2002, 2011, 2013*. Bolivia and northern Chile.

The species is employed in popular medicine as a diuretic and blood purifier (Herrera).

Plantago myosuros Lam. Ill. Gen. 1: 342. 1791.

Small or nearly tiny plants with slender, fusiform roots and usually numerous rosulate, lanceolate leaves, these 4–10 (–15) cm. long, 4–20 mm. wide, subentire or dentate, more or less sparsely villous; peduncles 4–15 cm. long, the slender spikes 4–15 cm. long; bracts subequaling the calyx, narrowly triquetrous-lanceolate, pubescent with rigid, spreading hairs, conspicuously thick-carinate; sepals

similarly pubescent, 2-2.5 mm. long, the anterior narrowly elliptic, the posterior broadly ovate or rotund-ovate; flowers closed or open, the lobes narrowly ovate or ovate; seeds 3, commonly narrowly elliptic, pale or dark brown-olive, 1.2-1.5 mm. long.

Lima: Matucana, 2,600 meters, on rock walls, 120. Río Blanco, 5,000 meters, 780.—Junín: Huancayo, 3,300 meters, *Killip & Smith 22038*. Widely distributed in southern Brazil, Uruguay, and Argentina.

Plantago myosuros* var. *parviflora Pilger, Bot. Jahrb. 50: 247. 1913.

Leaves lanceolate, small, conspicuously dentate; bracts 2-2.5 mm. long; sepals 1.7-2 mm. long; flowers closed or open.

Huánuco: María del Valle, on dry hill, 2,100 meters, 3550.

Plantago Orbignyana Steinh. ex Dcne. in DC. Prodr. 13, pt. 1: 704. 1852.

Rhizome short, thick, the root rather elongate; leaves more or less numerous, rosulate, narrowly ovate-elliptic or narrowly elliptic, obtuse, narrowed to a short petiole, 2-6 cm. long, the margins slightly undulate or distinctly and irregularly dentate, glabrescent above, villous beneath or short-villous on both sides; peduncles to 5-6 cm. long, the densely flowered spikes to about 1.5 cm. long; bracts broadly ovate, obtusely concave, more or less ciliate, 2.2-3 mm. long; sepals glabrous, 2-2.5 mm. long, the anterior ones elliptic or broadly elliptic, the posterior ones rotund-ovate or rotund; flowers closed or open, the small, ovate lobes 1-1.2 mm. long; seeds 3-4, dark olivaceous, narrowly elliptic, 2-2.5 mm. long.

Junín: Between Tarma and Jauja, 4,500 meters, *Killip & Smith 21974*.—Arequipa: Arequipa, *Guenther & Buchtien 1737*.—Puno: Chuquibambilla, 3,900 meters, *Pennell 13374a*.—Without locality, *Meyen*.—Southern Peru: *Weddell*. Northern Argentina; Bolivia.

Plantago Orbignyana* var. *lasiantha Pilger, Bot. Jahrb. 50: 284. 1913.

Leaves more villous, little dentate; peduncles to 9 cm. long; spikes lax at the base, nearly 3 cm. long; bracts long-villous-ciliate, sparsely villous on the back, 3.5 mm. long; sepals short-ciliolate toward the apex, 3 mm. long.

Lima: Chicla, 3,700 meters, among stones, *Weberbauer 244*, type. Río Blanco, 3,000-3,500 meters, *Killip & Smith 21554*; stony hill-top, 4,500 meters, 2959.

Plantago oreades Dcne. in DC. Prodr. 13, pt. 1: 699. 1852.

Rhizome stout, horizontal; leaves lanceolate or elliptic-lanceolate, 8–15 cm. long, entire or slightly obtuse-dentate, glabrous or beneath on the nerves slightly villous; inflorescences few, the peduncles 10–17 cm. long; spikes 8–10 cm. long; bracts elliptic-ovate, 2.5–3 mm. long, short-pubescent; sepals 2.5–2.7 mm. long, glabrescent, the anterior ones elliptic, the posterior ones elliptic-rotund to rotund; corolla lobes (in the open flowers) rotund-cordate, rounded apically, very shortly apiculate by the percurrent nerve, 1.5–1.7 mm. long.

Lima: Puente de Anché, 3,500 meters, *Weberbauer* 225. Colombia.

Plantago polyclada Pilger, Bot. Jahrb. 37: 643. 1906.

Suffrutescent, with a very stout, ligneous root; stems divided at the base into thickish, ligneous, ascending-suberect branches, densely clothed with persistent, broad leaf sheaths, short-branching, especially at the apex; leaves congested at the tips of the branchlets, linear, 2.5–9 cm. long, shortly silky-pilose, dilated at the base into triquetrous sheaths, densely villous within; peduncles equaling or shorter than the leaves, the subglobose, few-flowered spikes to 1 cm. long; bracts about three-fourths as long as the calyx, oval-ovate; sepals nearly 4 mm. long, the anterior ones narrowly elliptic, broadly keeled, the posterior ones broadly to roundish elliptic, concave, with a strong keel; corolla lobes roundish-elliptic, shortly narrowed and pointed apically, 3 mm. long, marked from the base nearly to the tip with brownish striations. Neg. 14169.

Puno: On limestone, 4,000 meters, Azángaro, *Weberbauer* 484, type; 185.

Plantago Psyllium L. Sp. Pl. 115. 1753.

A Mediterranean species, collected a number of times as an adventive in South America, as in Ecuador and Bolivia, in cultivated lands or sandy fields, but apparently not yet found in Peru.

Plantago rigida HBK. Nov. Gen. & Sp. 2: 227. *pl.* 126. 1818.

Pulvinate, composed of many small rosettes; leaves rigid, lustrous, linear-lanceolate or linear, 1–2 cm. long, impressed-puncticulate above; flowers unisexual; spikes reduced to a solitary flower; peduncle of the staminate flowers extremely short; bract vaginately enclosing the calyx, when expanded nearly semi-orbicular; sepals lance-oval, 6 mm. long; corolla tube narrow, 6–8 mm. long; anthers well exserted; pistillate flower short-peduncled; stigma well exserted; columnar carpophore thickish, to 2 mm. long; 1–4 seeds developing, thick, 2 mm. long, little-angled.

This species, which in typical form occurs most frequently on the paramos of Ecuador and rarely in Colombia and Bolivia, is represented in Peru by two varieties.

Plantago rigida* var. *pusilla Wedd. Chlor. And. 2: 162. 1857.

Leaves to 1 cm. long; plants densely pulvinate, the branches extremely short.—Presumably it is this form that Weberbauer, 109, describes as forming low, green cushions as broad as one-half meter, composed of delicate rosettes pressed together, and recalling *Azorella*.

Ancash: Cordillera Yanashallash, between Huaraz and Chavín de Huantar, 4,300–4,500 meters, *Weberbauer 3292*.—Ayacucho: Prov. La Mar, puna, 3,700 meters, *Weberbauer 5591*.—Cuzco: Cerro de Colquipata, open, grassy puna, 4,000 meters, *Pennell 13755*.—Puno: Sandía, above Cuyocuyo, 4,000 meters, *Weberbauer 1050*; 219. Also at Carabaya, at over 4,000 meters, according to Weddell.

Plantago rigida* var. *angustior Pilger, Bot. Jahrb. 37: 646. 1906.

Leaves narrower than in the type, thicker, short, linear, shortly rounded at the obtuse tip.

Ancash: Prov. Huari, above Ponto in bunch-grass formation, 4,200 meters, *Weberbauer 3301*.

Plantago sericea R. & P. Fl. 1: 51. pl. 79. 1798. *P. vestita* R. & S. Syst. Veg. 3: 149. 1818.

Ligneous, nearly suffrutescent, the stems divided into many decumbent or arcuate-ascending, laxly branching branches; leaves densely crowded at the branchlet tips, marcescent, persisting, more or less curving, narrowly linear, 2–5 cm. long, never more than 1 mm. wide, slender-sulcate above, silky-pilose, the triquetrous sheath with longer, villous-tomentose trichomes; inflorescences on each branch few, the rigid but slender peduncles 10–15 cm. long; spikes short, dense, 10–11 mm. long; bracts as much as half as long as the calyx, broadly ovate, villous; sepals (anterior a little narrower) 3.2–3.5 mm. long, elliptic or broadly elliptic, slightly villous, strongly carinate; corolla lobes broadly elliptic or broadly ovate-elliptic, obtusish, 3 mm. long, marked medially with rather wide striae; seeds narrow, about 3 mm. long, brownish. Neg. 14170.

Junín: On dry hill near Tarma, *Ruiz & Pavón*.

Plantago tacnensis Pilger, Repert. Sp. Nov. 15: 424. 1919.

Plants small, annual; leaves rather numerous, rosulate, linear or lance-linear, 1.5–4.5 cm. long, 1–3 mm. wide, gradually narrowed

to the subobtuse apex, lanate-villous with grayish white hairs; inflorescences numerous, the peduncles decumbent or arcuate-ascending, equaling or slightly exceeding the leaves, the spikes small, lax, usually distinctly interrupted, up to 1.5 cm. long, the axis tomentose-villous; bracts half as long as the calyx, ovate, obtuse, villous-ciliate, sparsely villous dorsally; sepals 2.5–2.7 mm. long, sparsely villous dorsally; corolla lobes narrow, subobtuse, 1.5 mm. long; capsule ellipsoid, finally longer than the calyx, up to 4 mm. long, circumscissile below the middle; seeds large, blackish brown, lustrous, smooth. Neg. 14171.

Tacna: Tacna, on bare, sandy hills, 800–900 meters, *Woitschach* 1890 and 1891, type.

Plantago tarattothrix Pilger, Bot. Jahrb. 37: 644. 1906.

A small perennial with a rather slender root and short stems parted into many short branches; leaves many, fasciculate, narrowly linear, 6–9 cm. long, to 2 mm. wide, grayish white with a silky-villous or floccose-villous pubescence; peduncles to 10 cm. long, densely yellowish white or yellowish brownish villous-tomentose; spikes moderately dense, to nearly 2 cm. long; bracts about two-thirds as long as the calyces, ovate, 3.2–3.5 mm. long, long-villous; sepals 3 mm. long, the anterior ones narrowly elliptic, marginally and dorsally long-villous without, with a thick keel; posterior sepals rotund-elliptic to nearly rotund, the keel rather narrow; corolla lobes broadly ovate-elliptic, 2 mm. long. Neg. 14172.

Cajamarca: Pass of Coimolache, above Hualgayoc, 4,000 meters, *Weberbauer* 3962; 271.

Plantago tubulosa Dene. in DC. Prodr. 13, pt. 1: 728. 1852.

Rhizome short, little if at all divided; leaves densely rosulate, rigid, lanceolate, 1–4 cm. long, coarsely dentate, lobate-dentate, or nearly entire; flowers unisexual; staminate spike 1–2-flowered, the peduncle nearly wanting; bracts clasping the spike, rotund-ovate when expanded; calyx 7–10 mm. long, the sepals connate below, the free portions lanceolate; corolla tube 10–12 mm. long; anthers long-exserted; pistillate spikes 1–2-flowered; stigma long-exserted; capsule with columnar stipe (carpophore) to 3 cm. long or often much shorter, thickish; seeds 4–6.—Illustrated, Wedd. Chlor. And. 2: pl. 64. Probably *P. Purpusii* Brandeg. from Mexico is not specifically distinct.

Ancash: Huarapasca, bunch-grass slope, 4,950 meters, 2489.—Lima: Grassy slopes, Río Blanco, 4,500 meters, 789.—Huánuco: Wet

slopes, 3,600 meters, Mito, 1884.—Puno: Carabaya, Weddell. Northern Chile and northern Argentina to Ecuador.

Plantago Weberbaueri Pilger, Bot. Jahrb. 62: 83. 1928.

A diminutive perennial with a woody, thickish root and short, simple or branched stems, the branches clothed with dead leaf remains; branches, if many, congested into compact cushions; leaves narrowly linear, thickish, sulcate, 1–6 cm. long, densely sericeous with a silvery or yellowish indument, finally, to greater or less degree, glabrescent; inflorescences extremely small, the peduncles 1–6 cm. long, the spikes few-flowered; bracts ovate or rotund-ovate at the base, more or less narrowed, 3–4 mm. long; sepals 3–4 mm. long, the anterior ones lance-ovate, villous, thickly carinate, the posterior sepals elliptic-ovate, concave; corolla lobes lance-ovate, longish or long-narrowed, the apex obtusish, 1.5–3 mm. long, spotted at the base. Neg. 14175.

Ayacucho: Silver mine of Santa Inés, in puna, 4,300 meters, *Weberbauer 5453*, type.—Lima: Río Blanco, 4,000 meters, 736.—Huánuco: South of Mito, 3,700 meters, 1895, 1896.—Cuzco: At 3,400 meters, *Herrera 135*, 448 in part.

2. BOUGUERIA Dcne.

Reference: Dcne. Ann. Sci. Nat. II. 5: 132. 1836; Hook. Lond. Journ. Bot. 4: 567. pl. 19. 1845.

Spikes short, ovoid-globose, the bracts broad, even broadly round-ovate, the nerves in the keel more or less marked. Sepals 4, small, narrow, densely pubescent with long, slender hairs. Corolla tube extremely slender, apically dentate but not distinctly lobed. Stamen 1, the elliptic anther well exerted. Style filiform. Ovary obovoid-globose, 1-celled, the ovule affixed to a short, columnar, basal placenta, transverse, reniform-curved. Fruit indehiscent, globose; embryo large, curved; cotyledons larger than the radicle.—The genus consists of a single species.

Bougueria nubicola Dcne. Ann. Sci. Nat. II. 5: 132. 1836; Hook. Lond. Journ. Bot. 4: 568. 1845.

Root stout, the stems short, simple, thick, densely yellowish-long-lanate above in the axils of persistent leaves; leaves densely rosulate, linear, 1–4 cm. long, or in young specimens to 6 cm. long, the younger densely yellowish-silky-villous, gradually becoming glabrescent and finally glabrate; peduncles 1–2.5 cm. long, the spikes to 1 cm. long; bracts 5–5.5 mm. long; sepals 2 mm. long, the

corolla to twice as long.—The type was collected by d'Orbigny at 4,800 meters, Las Lagunas above Potosí, Bolivia; Weddell gives a Peruvian record as between Puno and Arequipa.

Ayacucho: Silver mine of Santa Inés, in puna, 4,300–4,500 meters, *Weberbauer* 5429.—Puno: Sandía, Poto, 4,500 meters, *Weberbauer* 994; 219 (in error as “*nubigena*”).—Arequipa: Arequipa, 2,000–2,500 meters, *Guenther & Buchtien* 1734. Bolivia.

CAPRIFOLIACEAE. Honeysuckle Family

By E. P. Killip, U. S. National Museum

Shrubs, trees, or woody vines, rarely herbs; leaves usually estipulate, opposite, simple or pinnate; flowers perfect, regular or irregular; calyx tube adnate to the ovary, the limb 3–5-dentate or lobate; corolla gamopetalous, rotate or tubular, the limb 5-lobed or bilabiate; stamens usually 5, inserted on the corolla tube alternate with the lobes; ovary inferior; style simple or lobed; fruit a berry, drupe, or capsule, 1–6-seeded.

The Japanese honeysuckle (*Lonicera japonica* Thunb.) is cultivated in northern Peru, and may have become established. It is known as “madreselva” and “brinco de dama.” *Lonicera Caprifolium* L., likewise known as “madreselva,” is cultivated in Cuzco according to Herrera.

Leaves pinnate; fruit 3–5-seeded.....1. *Sambucus*.

Leaves simple; fruit 1-seeded.....2. *Viburnum*.

1. SAMBUCUS L.

Shrubs or trees; leaves pinnate or bipinnate, the leaflets serrate or laciniate; flowers small, in compound, flat-topped or thyrsoidal cymes; calyx 3–5-dentate; corolla regular, rotate, 3–5-lobed; fruit a small drupe, containing 3–6 one-seeded nutlets.

The name “sauco” is applied to species of this genus throughout Spanish America. In Cuzco *S. peruviana* is known also as “rayán.” The leaves have excitant properties, and from the fruits is prepared a sirup which is used for throat troubles and in the cure of ulcers. Leaflets, or some of them, pinnately parted, glabrous or sparingly pubescent on the midnerve, subcaudate, the serrations rather distant toward the apex.....*S. mexicana* var. *bipinnata*.

Leaflets not parted, pubescent on the nerves and veins beneath, acute, acuminate, or subobtusate, closely serrate throughout.

S. peruviana.

Sambucus mexicana Presl, var. **bipinnata** (Schlecht. & Cham.) Schwerin, Mitt. Deutsch. Dendr. Ges. 1909: 34, 328. 1909. *S. bipinnata* Schlecht. & Cham. Linnaea 5: 171. 1830.*

A small tree or a shrub, 2-4 meters high (perhaps higher), glabrous, or sometimes the under side of the midnerve of the leaflets sparingly pilosulous; leaflets 5-7, the lower pairs usually trifoliolate with the lateral leaflets reduced, ovate-lanceolate, 3-10 cm. long, 1-4 cm. wide, subcaudate-acuminate, sharply serrate, the teeth rather distant toward the apex; inflorescence a flat-topped cyme up to 20 cm. wide; corolla limb about 6 mm. wide; fruit black.

San Martín: Tarapoto, 750 meters, *Williams* 5933. San Roque, 1,350-1,500 meters, *Williams* 7028.—Loreto: Mouth of Río Pastasa, 150 meters, *Killip, Smith & Dennis* 29180. Mishuyacu, 100 meters, *Klug* 860. La Victoria, *Williams* 2835. Iquitos, *Williams* 1428, 1532, 7919.—Huánuco: Huánuco, *Kanehira* 206.—Junín: San Ramón, 1,700 meters, *Killip & Smith* 24713. Southwestern United States, Mexico, and Central America to Venezuela and Peru.

Sambucus peruviana HBK. Nov. Gen. & Sp. 3: 429. 1820.

A medium-sized tree up to 12 meters high, the branchlets glabrous; leaflets usually 7, ovate or ovate-oblong, rarely obovate, 4-12 cm. long, 3-5 cm. wide, acute or acuminate, rarely subobtuse, closely and evenly serrate, glabrescent above, hirtellous on the midnerve and on the veins beneath; inflorescence a flat-topped cyme; corolla limb about 6 mm. wide, the lobes suborbicular; fruit black, 5-6-seeded.

Lima: Río Blanco, 3,000-3,500 meters, cultivated, *Killip & Smith* 21746.—Huánuco: Pampayacu, *Kanehira* 188.—Cuzco: Ollantaitambo, 3,000 meters, *Cook & Gilbert* 786. Huasao, 3,200 meters, *Herrera* 3025. Also in Bolivia and northern Argentina. Apparently also in Central America, where perhaps introduced.

2. VIBURNUM L.

Reference: *Killip & Smith*, The South American species of *Viburnum*, Bull. Torrey Club 57: 245-258. 1931.

Erect shrubs or small trees; leaves opposite or ternate, simple, entire or toothed; flowers small, borne in compound cymes; calyx 5-lobed; corolla rotate or broadly campanulate, 5-lobed; stamens 5, inserted at the base of the corolla tube; ovary 1-celled, the ovule solitary; style very short and thick, glabrous or pubescent; fruit drupaceous, 1-seeded.

Leaves densely and persistently stellate-tomentose beneath, sparingly to densely tomentose above; style pubescent. . . . *V. reticulatum*.

Leaves essentially glabrous, sometimes pilosulous on the nerves and in their axils on the lower surface; style glabrous.

Corolla more than 4 mm. wide when expanded.

Leaves all opposite, never in 3's.

Leaves membranous, short-acute, subentire, the petioles up to 1.5 cm. long. *V. ayavacense*.

Leaves coriaceous, usually long-acuminate and denticulate to the base, the petioles 1.5-2.5 cm. long. . *V. Witteanum*.

Leaves predominately in 3's.

Margin of the leaves entire.

Branchlets essentially glabrous; peduncles and rays of the inflorescence finely subappressed-hirtellous, many of the hairs simple. *V. triphyllum*.

Branchlets, peduncles, and rays of the inflorescence densely stellate-tomentose. *V. incarum*.

Margin of the leaves toothed, at least toward the apex.

Leaves obovate or narrowly oblanceolate, 3-4-toothed at the apex. *V. tridentatum*.

Leaves ovate or ovate-lanceolate, obscurely toothed down to the middle. *V. Mathewsii*.

Corolla not more than 4 mm. wide even when expanded.

Inflorescence mainly terminal at the ends of elongate branchlets; petioles averaging about 10 mm. long. *V. Jelskii*.

Inflorescence subaxillary as well as terminal, borne on numerous short, leafy branchlets; petioles 5-10 mm. long. *V. Seemenii*.

Viburnum ayavacense HBK. Nov. Gen. & Sp. 3: 428. 1820.
Oreinotinus ayavacensis Oerst. Kjoeb. Vid. Medd. 1860: 290. 1861.

A shrub about 4 meters high, the branchlets essentially glabrous; leaves ovate, 5-8 cm. long, 2-5 cm. wide, acute or subacute, rounded or slightly cordate at the base, entire, or obscurely denticulate toward the apex, membranous, glabrous, or sparingly stellate-pilosulous beneath, the petioles about 1 cm. long; cymes 6-7-rayed, the peduncle and rays stellate-tomentose; corolla 6-7 mm. wide; style glabrous.

Piura: Ayavaca, 2,400-2,700 meters, *Humboldt & Bonpland* (type); *Weberbauer 6387*. Also in Ecuador.

Viburnum incarum Graebn. Bot. Jahrb. 37: 435. 1906.

A shrub or a much branched tree, 3–5 meters high, the younger branches, peduncles, and rays of the inflorescence densely stellate-tomentose; leaves usually in 3's, ovate or oblong-ovate, 4–7 cm. long, 1.5–3.5 cm. wide, subacute, entire or nearly so, minutely stellate-pubescent on the nerves above, pilosulous in the axils beneath; cymes up to 9 cm. wide, the peduncle about 6 cm. long, the rays 5–7; calyx lobes fimbriate; flowers about 5 mm. wide; style glabrous; fruit ovoid.

Junín: Huacapistana, 1,500–2,000 meters, *Killip & Smith 24137, 24326, 24508*; *Weberbauer 1986* (photo. of type seen).

Viburnum Jelskii Zahlbr. Ann. Nat. Hofmus. Wien 7: 1. 1892.

A small tree, 3–6 meters high, the branchlets densely rufo-stellate-tomentose, at length glabrous; leaves ovate or oblong-ovate, 5–12 cm. long, 4–7 cm. wide, acuminate, rounded or subacute at the base, callose-dentate or subentire, essentially glabrous, or sparingly stellate-pubescent beneath, subcoriaceous; cymes 6–10 cm. wide, finely stellate-tomentose, 6–7-rayed; corolla about 4 mm. wide; style glabrous.

Amazonas: Panahuanca, *Mathews 1198*.—San Martín: Tarapoto, *Spruce 4835*. Zepelacio, 1,600 meters, *Klug 3400*. San Roque, 1,400 meters, *Williams 6997, 7170, 7495, 7779*.—Cajamarca: Cutervo, *Jelski 35* (type).—Ayacucho: Carrapa, 1,000 meters, *Killip & Smith 22409, 22496, 22498*. Aina, 900 meters, *Killip & Smith 22734, 23128, 23132, 23172*.—Cuzco: Urubamba Valley, 1,800 meters, *Cook & Gilbert 1157*.—Without locality, *Poeppig 1309*. Also in southern Ecuador.

Viburnum Mathewsii (Oerst.) Killip & Smith, Bull. Torrey Club 57: 253. 1931. *Oreinotinus Mathewsii* Oerst. Kjoeb. Vid. Medd. 1860: 291. 1861. *V. fur* Graebn. Bot. Jahrb. 37: 434. 1906 (?).

A small tree, the branchlets, peduncles, and rays stellate-tomentose, the branchlets at length glabrous; leaves usually in 3's, ovate or ovate-lanceolate, 3–12 cm. long, 2–6 cm. wide, rounded or acuminate, rounded or subcuneate at the base, callose-denticulate or subentire, coriaceous, lustrous and glabrous or sparingly stellate-pubescent above, glabrous beneath or stellate-pubescent on the principal nerves; cymes 5–9 cm. wide, 5–7-rayed, the rays up to 5 cm. long; calyx tube glabrous, glandular, the lobes oblong or ovate-oblong; corolla 5–6 mm. wide.

Amazonas: Bagasán, *Mathews 1605* (type).—Cajamarca: Cutervo, *Jelski 359*. San Miguel, Prov. Hualgayoc, 2,600–2,700 meters (*Weberbauer 3895* [?], type of *V. fur*).—Huánuco: Mito, 2,800 meters, 1385, 1460, 1653, 1749, 3400. Posuso, 3,100 meters, 4779.

There is considerable difference in the texture of the leaves of these specimens, and perhaps more than a single species is represented. The type has very thick leaves, and the Jelski collection very thin leaves. Between these extremes comes the material from Huánuco.

Viburnum reticulatum R. & P. ex Oerst. Kjoeb. Vid. Medd. 1860: 286. 1861, as synonym. *Oreinotinus reticulatus* Oerst. loc. cit. *V. Weberbaueri* Graebn. Bot. Jahrb. 37: 433. 1906.

A shrub, about 3 meters high, densely brownish-stellate-tomentose throughout; leaves obovate or oblong-ovate, 5–10 cm. long, 3.5–6 cm. wide (extremes up to 20 cm. long), obscurely dentate, repand-denticulate, or subentire, obtuse or acute, reticulate, subcoriaceous; inflorescence rays 5–7; corolla 3–4 mm. wide; style pubescent; fruit broadly ovoid.

Cajamarca: Tabaconas Valley, 1,600 meters, *Weberbauer 6241*. Cutervo, 2,300 meters, *Weberbauer 7129*.—Huánuco: Pillao, *Ruiz & Pavón* (type). Monzón, 1,600–1,800 meters (*Weberbauer 3561*, type of *V. Weberbaueri*).

Viburnum Seemenii Graebn. f. ***bolivianum*** (Gandoger) Killip & Smith, Bull. Torrey Club 57: 258. 1931. *V. bolivianum* Gandoger, Bull. Soc. Bot. France 65: 33. 1918.

A much branched shrub, the branches divergent, elongate, softly and densely yellow-tomentose; leaves ovate or ovate-oblong, 5–12 cm. long, 2–7 cm. wide, acuminate, subrotund or cuneate at the base, entire, or obscurely toothed in the upper half, subcoriaceous, sparingly stellate-pubescent beneath; inflorescence subaxillary as well as terminal, the cymes borne on numerous short, leafy branches, 5–7-rayed, the peduncles and branches softly and densely yellow-tomentose; corolla 3–4 mm. wide; style glabrous.

Huánuco: Cochero, *Ruiz & Pavón*.—Cuzco: Lucumayo Valley, *Cook & Gilbert 1388*. Also in Bolivia. "Pucañahui."

Viburnum tridentatum Killip & Smith, Bull. Torrey Club 57: 251. 1931. *Oreinotinus obovatus* Oerst. Kjoeb. Vid. Medd. 1860: 286. 1861, without description. *V. obovatum* R. & P. ex Oerst. loc. cit., as synonym, not *V. obovatum* Walt. 1788.

A much branched shrub or a small tree, the branchlets densely and softly stellate-tomentose; leaves in 3's, obovate or narrowly oblanceolate, 3–5 cm. long, 1.5–2.5 cm. wide, rounded or short-triangular-acute at the apex, cuneate at the base, finely undulate-denticulate towards the apex (teeth 3–5), sparingly stellate-pubescent with crispate hairs on the nerves and veins both above and beneath; peduncles 3–4.5 cm. long, densely and softly stellate-tomentose; cymes 4–7 cm. wide, pubescent as the peduncle; calyx tube sparingly glandular-punctate, glabrous, the lobes suborbicular; corolla about 5 mm. wide when expanded; style glabrous.

Arequipa: Vitoc, *Ruiz & Pavón* (type).

Viburnum triphyllum Benth. Pl. Hartw. 189. 1845. *Oreiniotinus triphyllus* Oerst. Kjoeb. Vid. Medd. 1860: 290. 1861. *O. laurifolius* Oerst. op. cit. 291. pl. 6, f. 11–17.

A shrub or a small tree, the branchlets pubescent with simple or stellate hairs, becoming glabrous; leaves usually in 3's, ovate or ovate-oblong, 4–8 cm. long, 2–5 cm. wide, rounded or acute, entire, coriaceous, lustrous, glabrous, or usually tomentose in the axils of the nerves beneath; peduncle and rays appressed-hirtellous; calyx tube sparingly glandular-punctate; corolla 4–5 mm. wide; style glabrous.

Amazonas: Chachapoyas, *Mathews 1623*, in part (type of *O. laurifolius*); *2114*, in part.—Without locality, *Ruiz & Pavón*; *Mathews 2027* in part, *2038*. Also in Colombia and Ecuador. Two forms of this also occur in Peru.

Viburnum triphyllum f. *lanceolatum* Killip & Smith, Bull. Torrey Club 57: 252. 1931.

Leaves lanceolate or oblanceolate, at least 3 times longer than broad, 10–13 cm. long, 3–3.5 cm. wide.

Huánuco: Cochero, *Ruiz & Pavón*.—Without locality, *Ruiz & Pavón* (perhaps a part of the preceding; type).

Viburnum triphyllum f. *microphyllum* Killip & Smith, loc. cit.

Leaves prevailingly obovate, 1.5–3 cm. long, 0.7–1.5 cm. wide; cymes smaller than in the typical form.

Amazonas: Chachapoyas, *Mathews 1623* in part, *2114* in part (type), *3099*.

Viburnum Witteanum Graebn. Bot. Jahrb. 37: 434. 1906.

A shrub, about 4 meters high, the branchlets sparingly stellate-pubescent, at length glabrous; leaves oblong, 5–13 cm. long, 3–6 cm.

wide, acuminate, rounded at the base, dentate or denticulate toward the apex, coriaceous, sparingly stellate-pilosulous beneath, the petioles 1.5–2.5 cm. long; cymes 7–12 cm. wide, the peduncle and rays stellate-tomentose; corolla 6–8 mm. wide; style glabrous.

Ayacucho: Between Tambo and Río Apurímac, 3,200 meters, *Weberbauer* 5589.—Cuzco: Yanamanchi, 3,100–3,200 meters, *Weberbauer* 4960 (photo. of type seen). Also in Bolivia.

In the account of the South American species of *Viburnum* we combined this species with *V. ayavacense*. From the photograph now available it is evident that the type is well matched by several Bolivian specimens, and it is perhaps better to consider the plant from southeastern Peru and Bolivia specifically distinct from the one of northern Peru and southern Ecuador.

Cornus peruviana Macbr. was later transferred to *Viburnum* by Macbride (*Trop. Woods* 24: 29. 1930), but it is now considered to be a true *Cornus* (see Standley, *op. cit.* 43: 16. 1935).

VALERIANACEAE. Valerian Family

By E. P. Killip, U. S. National Museum

References: Dufresne, *Hist. Nat. Med. Valerian.* 1811; Weddell, *Chlor. And.* 2: 17–34. 1857; Höck, *Bot. Jahrb.* 3: 1–74. 1882; Graebner, *op. cit.* 37: 436–451, 464–480. 1906; Briquet, *Ann. Conserv. Jard. Bot. Genève* 17: 326–356. 1914.

Annual or perennial herbs, sometimes low shrubs, the roots with a strong, characteristic odor; leaves opposite, estipulate, often massed at or near the base, simple or compound; inflorescence highly variable, capitate to laxly paniculate and repeatedly branched; flowers perfect, polygamous, or rarely dioecious; calyx tube adnate to the ovary, the limb inconspicuous in flower but becoming a pappus in fruit, or wanting; corolla gamopetalous, funnel-shaped or tubular, the limb spreading, 3–5 (rarely 6–8)-lobed; stamens 1–4, inserted on the corolla and alternate with the lobes, usually exserted; ovary inferior, 1–3-celled, one cell 1-ovuled, the others empty; fruit indehiscent, 1-seeded.

This family consists of about 16 genera and from 350 to 400 species, and occurs mainly in the temperate zone and in the high mountains of the tropics. Of the numerous species in Peru, many are known from only a single specimen, and an adequate concept of the family and of the lines of separation between the species is impossible until further collecting has been done. In addition to

the native species, *Valeriana officinalis* L. and *V. Phu* L. are reported from Peru by Ruiz and Pavón, and *Centranthus ruber* (L.) DC. has been collected at Arequipa (*Hinkley 32*). *Plectritis samolifolia* (Colla) Höck is listed from Peru by Stuckert and Briquet (Ann. Conserv. Jard. Genève 20: 429. 1919), perhaps through error in associating a Ruiz and Pavón Chilean specimen with Peru. The following Ecuadorean species have been assigned to Peru through faulty geographic knowledge: *Valeriana alypifolia* HBK., *V. hirtella* HBK., *V. microphylla* HBK., and *V. amphiphys* Graebn.

Corolla 5 (rarely 6-8)-lobed (3-lobed in one species of *Aretiastrum*).

Leaves closely imbricate throughout the stem, 3-angled toward the apex, connate, up to 5 mm. long; flowers solitary in the axils of the upper leaves.....1. *Aretiastrum*.

Leaves not closely imbricate, or in rosettes, flat, usually with a distinct blade; flowers in clusters or, if solitary, borne on the ultimate branches of a diffuse inflorescence.

Anthers orbicular or oblong, the filaments well developed and usually exerted; stems or scapes generally elongate.

Fruit with the two empty cells equaling or larger than the perfect cell; inflorescence few-flowered, the peduncles long and slender.....2. *Astrephia*.

Fruit with the two empty cells much smaller than the perfect cell.....3. *Valeriana*.

Anthers linear, sessile or subsessile; stems or scapes very short and stout, the inflorescence usually flat-topped and much broader than long.....3. *Stangea*.

Corolla 3 (rarely 4)-lobed.

Tube of the corolla long and very slender, needle-like.

5. *Belonanthus*.

Tube of the corolla very short, stouter.....6. *Phyllactis*.

1. ARETIASTRUM Spach

Low, caespitose shrubs, freely branched, the branches very leafy; leaves small, coriaceous, closely imbricate, connate at the base, entire; flowers few, solitary, hidden among the uppermost leaves, sessile or short-pedicelled, polygamous or dioecious, the tube funnel-shaped, the limb 3-5-parted.

Corolla 5-parted; leaves up to 2 mm. long.....A. *Aschersonianum*.

Corolla 3-parted; leaves 3-5 mm. long.....A. *imbricatum*.

Aretiastrum Aschersonianum Graebn. Bot. Jahrb. 37: 448. 1906. *Valeriana Aschersoniana* Graebn. ex Weberbauer, op. cit. 72. 1905, name only.

Leaves scarcely 2 mm. long, strongly dilated and fimbriate at the base, triquetrous toward the apex, obtuse; corolla limb 5-parted; anthers broadly ovate.

Lima: Alpamina, 4,500 meters (*Weberbauer 5150*, type).

Aretiastrum imbricatum Killip, comb. nov. *Valeriana imbricata* Killip, Journ. Wash. Acad. Sci. 18: 501. 1928.

Branches very numerous, 4–6 cm. high; leaves linear-spatulate or linear-oblong, 3–5 mm. long, 1–1.2 mm. wide, obtuse or subacute, subrevolute, ciliate; flowers dioecious, only the staminate known; corolla tube 4–5 mm. long, very slender, the limb 3-parted, the divisions triangular-ovate, subacute; stamens exserted.

Piura: Huancabamba, 3,200 meters, *Weberbauer 6088* (type).

This species surely belongs to *Aretiastrum*, though the corolla has only 3 lobes, whereas in the four other known species it is 4- or 5-lobed.

2. ASTREPHIA Dufr.

Lax, diffuse, annual herbs; leaves pinnate and pinnatifid; cymes few-flowered, with long, slender peduncles, the flowers sessile or short-pedicel, the pedicel usually becoming elongate in fruit; calyx limb very short or almost wanting; corolla tube narrowly funnel-shaped, the limb 5-lobed; style trifid; fruit broadly ovate or rhombic-ovate, epappose, the 2 empty cells equaling or larger than the perfect cell.

Astrephia chaerophylloides (J. E. Sm.) DC. Prodr. 4: 629. 1830. *Valeriana chaerophylloides* J. E. Sm. Pl. Icon. Ined. 3: pl. 53. 1793. *V. laciniata* R. & P. Fl. 1: 42. pl. 69, f. a. 1798. *V. chaerophylla* Pers. Syn. 1: 37. 1805. *Astrephia laciniata* Dufr. Hist. Nat. Med. Valerian 52. 1811.

Leaves membranous, lanceolate in general outline, imparipinnate, the leaflets 1–5-jugate, coarsely dentate or pinnatifid, averaging about 1 cm. long.

Lima: Matucana, 2,400 meters, 191. San Gerónimo, 150 meters, 5905. Atocongo 250–500 meters, *Pennell 14779*. Amancaes, 200–400 meters, *Pennell 14807*.—Huánuco: Posuso, 600 meters, 4604.—Junín: San Ramón, 1,400–1,700 meters, *Killip & Smith 24712*. Pichis Trail, *Killip & Smith 25786, 26096*.—Without locality,

Mathews. Reported by Ruiz and Pavón from Lima, Chancay, Chinchao, and Muña. "Arvegilla." Also in Colombia and Ecuador.

3. VALERIANA L.

Perennial herbs or low shrubs, rarely annuals, erect or ascending, sometimes scandent; roots woody, fleshy, or tuberous; leaves mainly basal in most species, fascicled at the nodes in a few, simple or imparipinnate, entire, toothed, or pinnatifid; inflorescence variable, the flowers in dense clusters which are solitary and terminal, or which form a dense or an interrupted spike or raceme, or the flowers in loose cymes or variously paniculate; calyx limb usually of 5-20 plumose teeth, short and inrolled in flower, at length elongate and forming a pappus; corolla limb 5 (rarely 6-8)-lobed; fruit compressed, the 2 empty cells much smaller than the perfect cell.

The roots of many species of *Valeriana* have medicinal properties.

A. Flowers in dense, globose or subglobose heads which are solitary and terminal, or grouped in a continuous or an interrupted spike, sometimes the lower heads peduncled; leaves mainly basal (except in *V. connata*).

B. Leaves simple, entire or toothed, not pinnatifid.

Stems woody, leafy, the internodes subequal. *V. connata*.

Stems herbaceous, leafless or nearly so.

Cauline leaves pinnatifid in the lower half. *V. lyrata*.

Cauline leaves entire or wanting.

Leaves ciliolate.

Inflorescence spicate; stem glabrous. *V. coarctata*.

Inflorescence capitate; stem finely pubescent.

V. isoetifolia.

Leaves not ciliolate.

Leaf blades more than 4 mm. wide, abruptly or sub-abruptly tapering to the petiole.

Leaves conspicuously serrate. *V. serrata*.

Leaves serrulate or entire.

Corolla 5-lobed. *V. nivalis*.

Corolla 6-8-lobed. *V. globularioides*.

Leaf blades less than 4 mm. wide, gradually tapering to the petiole.

Scapes averaging more than 6 cm. long, the inflorescence an interrupted spike, rarely a single head.

V. Condamoana.

Scapes (or stems) averaging less than 6 cm. long, the inflorescence a single head.

Pappus 5-7-rayed; stem stout.....*V. pycnantha.*

Pappus 10-12-rayed; stem slender....*V. globularis.*

B. Leaves pinnate or pinnatifid.

Fruit pilosulous on one face; plant sparingly to densely pubescent.....*V. globiflora.*

Fruit glabrous; plant glabrous except at the nodes.

Inflorescence a single head.....*V. Trichomanes.*

Inflorescence spiciform.

Basal leaves strictly pinnate, the terminal leaflet much larger than the lateral ones.....*V. Pennellii.*

Basal leaves pinnate or pinnatifid, the terminal segment (or leaflet) smaller than or subequal to the lateral ones.

Leaves less than 1 cm. wide, the leaflets cuneiform, digitate-pinnatifid.....*V. cephalantha.*

Leaves usually more than 1 cm. wide, the leaflets or segments entire.....*V. micropterina.*

A. Flowers in cymes, loose clusters, or distinct, the inflorescence cymose-paniculate, pyramidal, or diffusely paniculate, in a few species the flowers in subglobose heads in a racemose panicle, or in a single, terminal cyme.

Stems woody, not scandent, leafy throughout, the leaves often fascicled.

Leaves pinnate, the leaflets narrowly linear.....*V. virgata.*

Leaves simple, linear to ovate-oblong.

Plant subrepent, the stems ascending, densely tomentose; leaves not more than 1.5 cm. long.....*V. ledoides.*

Plant erect; stems glabrous or puberulent; leaves more than 1.5 cm. long.

Leaves ovate-oblong, about 1 cm. wide, the cauline few.

V. quadrangularis.

Leaves linear, narrowly lanceolate, or oblong, less than 1 cm. wide, the cauline very numerous.

Fruit obscurely nerved; leaves somewhat puberulent.

V. Grisiana.

Fruit strongly ribbed, the ribs elevated; leaves glabrous.

V. costata.

Stems herbaceous, the cauline leaves relatively few and reduced, or scandent plants with woody stems and numerous, developed cauline leaves.

C. Inflorescence cymose-paniculate or racemose-paniculate, the flowers in rather dense clusters (inflorescence a terminal cyme in *V. oblongifolia* and *V. parvula*, and sometimes in *V. interrupta*).

Leaves simple, entire or irregularly toothed, not pinnatifid.

Plant not more than 10 cm. high.

Cauline leaves linear-lanceolate, laciniate-dentate; plant pubescent.....*V. oblongifolia.*

Cauline leaves narrowly linear (or wanting), entire; plant glabrous.....*V. parvula.*

Plant more than 10 cm. high.

Petiole of basal leaves more than twice as long as the blade.....*V. sphaerocephala.*

Petiole of basal leaves not more than twice as long as the blade.

Inflorescence pyramidal, more than 8 cm. wide.

Basal leaves linear-lanceolate or lanceolate, entire.

V. Weberbaueri.

Basal leaves cuneate-obovate, coarsely and irregularly dentate.....*V. Hadros.*

Inflorescence more or less virgate, not more than 8 cm. wide.

Leaves linear-lanceolate to oblanceolate, entire; stem and under side of midnerve of leaves usually pilose.....*V. pilosa.*

Leaves ovate, cordate-ovate, or orbicular-reniform, entire or irregularly toothed; stem essentially glabrous.

Bractlets less than 1 cm. wide; root short-tuberosous.....*V. Herrerae.*

Bractlets 1 mm. or more wide; root fusiform, thickened at the apex.

Basal leaves cordulate, obscurely crenulate.

V. nigricans.

Basal leaves tapering to the petiole, dentate or denticulate.....*V. plectritoides.*

Leaves pinnate or pinnatifid.

Terminal leaflet much larger than the lateral ones.

Leaflets entire.....*V. radicata.*

Leaflets dentate.....*V. variabilis.*

Terminal leaflet not larger than the lateral ones.

Inflorescence cymose or cymose-paniculate.*V. interrupta.*

Inflorescence racemose-paniculate or subpyramidal.

Leaves pinnate throughout, the leaflets not united.

Leaflets 3-6-jugate, incised or pinnatisect.

V. sphaerophora.

Leaflets 10-15-jugate, entire or 2-4-toothed.

V. thalictroides.

Leaves pinnatifid in the upper half, pinnate in the lower.

Plant rufo-tomentellous throughout; leaflets and leaf segments irregularly serrate.*V. rufescens.*

Plant glabrous; leaflets and leaf segments regularly crenate-serrate.....*V. asplenifolia.*

C. Inflorescence diffusely paniculate, the flowers single or in clusters of 2-4.

Indument stellate, at least in part.

Upper surface of the leaves stellate-pubescent; leaves subobtuse.....*V. tomentosa.*

Upper surface of leaves pubescent with simple hairs; leaves sharply acute.....*V. malvacea.*

Indument simple or none.

Plant scandent.

Leaves simple or trifoliolate.

Stem herbaceous; leaves or leaflets repand or sinuate-dentate, rarely entire, rounded or cordate at the base.....*V. scandens.*

Stem somewhat woody; leaves entire, acute at the base.

Fruit about 1 mm. long; ultimate branches of the inflorescence filiform, 3 cm. or more long, the flowers distant.....*V. Pardoana*.

Fruit 2-3 mm. long; ultimate branches of the inflorescence stouter and shorter, the flowers in clusters of 2-3.....*V. Pavonii*.

Leaves pinnate, the leaflets 5 or more.

Leaflets 4-10-jugate, 1-1.5 cm. long; bractlets obtuse.
V. jasminoides.

Leaflets 2-3-jugate, the terminal one more than 2.5 cm. long; bractlets acute.....*V. decussata*.

Plant erect.

Leaves all simple, entire or toothed, not deeply lobed or pinnatifid.

Fruit reticulate with dark lines on one face, papillose on the other, obscurely nerved.....*V. renifolia*.

Fruit smooth, greenish, 3-nerved on one face, 1-nerved on the other.

Plant annual, with a short, tuberous root; fruit densely pubescent on one face..*V. urticaefolia*.

Plant perennial, with an elongate, woody or fleshy root; fruit glabrous on both faces (in *V. Tessorffiana* sparingly pilosulous on one face).

Stem and leaves densely pubescent.*V. paniculata*.

Stem and leaves essentially glabrous.

Cauline leaves cordate-reniform, numerous.

V. Baltana.

Cauline leaves obovate or ovate-lanceolate, few, or confined to sterile shoots.

V. Tessorffiana.

Leaves, or some of them, pinnate or pinnatifid.

Fruit pubescent on both faces, reticulate with conspicuous dark lines when mature.

Leaves all pinnate; fruit lance-ovate, less than 1.5 mm. wide.....*V. agrimonifolia*.

Leaves pinnatifid, or some of the lower ones entire; fruit broadly ovate, more than 1.5 mm. wide.

V. pinnatifida.

Fruit glabrous, or pubescent on one face, rarely on both faces, not dark-lined.

Fruit strongly verrucose.....*V. verrucosa*.

Fruit smooth (verruculose in *V. Mathewsii*?).

Leaves all pinnate, the leaflets coarsely toothed, often petiolulate.

Fruit pubescent, abruptly tapering to a beak; bractlets purple-tipped.....*V. variabilis*.

Fruit glabrous, merely acute; bractlets green.
V. Warburgii.

Leaves not all pinnate, entire or denticulate, if pinnate the leaflets sessile.

Fruit glabrous.

Lower leaves densely hirsute; stem not more than 5 mm. in diameter.*V. paniculata*.

Lower leaves puberulous; stem more than 5 mm. in diameter.....*V. bambusicaulis*.

Fruit pubescent, at least on one face.

Basal and lower cauline leaves all simple, crenulate, the upper cauline ones pinnately lobed.....*V. Mathewsii*.

Basal leaves simple or, if pinnate, the lateral leaflets much reduced.

Leaves pubescent, membranous or subcoriaceous, acute or subobtus.

V. Macbridei.

Leaves glabrous, thick-coriaceous, acuminate.....*V. dipsacoides*.

Valeriana agrimonifolia Killip, Journ. Wash. Acad. Sci. 21: 353. 1931.

A perennial herb, up to about 75 cm. high, essentially glabrous throughout, the fruit pubescent; root thickened at the apex; stem usually single, erect, simple; basal and cauline leaves similar, all strictly imparipinnate, up to 10 cm. long, including a short petiole, and 5 cm. wide, the leaflets 4-5-jugate, ovate or lance-ovate, obtuse or subacute, regularly crenate-serrate, sessile, membranous; inflorescence subracemose-paniculate, elongate, trichotomous and dichotomous, the flowers in small, rather loose clusters; bractlets linear,

divergent; flowers mostly perfect; fruit lance-ovate, about 2 mm. long and up to 1 mm. wide, 3-nerved and densely pilosulous on one face, 1-nerved, rugulose, and sparingly pilosulous on the other, the pappus 8–10-rayed.

Lima: Río Blanco, 3,000–3,500 meters, *Killip & Smith 21663, 21744*. Baños, *Wilkes Expedition*.—Junín: Tarma, 3,100 meters, *Killip & Smith 21933* (type).

Similar to *V. pinnatifida*, but the leaves are all pinnate and the fruit is narrower.

Valeriana asplenifolia Killip, Journ. Wash. Acad. Sci. 21: 352. 1931.

Plant caespitose, essentially glabrous throughout, the root thick, branched toward the apex; stems erect, up to 25 cm. high; basal leaves rosulate, membranous, linear-lanceolate in general outline, 0.5–1.5 cm. wide, acuminate, pinnate, pinnatifid toward the apex, 5–15 cm. long, including a petiole subequal to the blade, the leaflets 10–15-jugate, ovate or lance-ovate, regularly crenate-serrate, obtuse, sessile, the cauline leaves 1–2 pairs, sessile, similar to the basal; inflorescence racemose-paniculate, the flowers in dense, subglobose, short-peduncled heads; flowers apparently dioecious, the staminate larger than the pistillate, the stamens long-exserted; fruit lance-oblong, obscurely 3-nerved on one face and 1-nerved on the other, the pappus 10-rayed.

Junín: Mt. La Juntai, near Huancayo, 4,700 meters, *Killip & Smith 22051* (type), 22086.

Valeriana Baltana Graebn. Bot. Jahrb. 37: 439. 1906.

An erect herb, 30–100 cm. high; essentially glabrous throughout, the root elongate; leaves subrotund or cordate-reniform, obtuse or rounded, the basal up to 12 cm. long and 14 cm. wide, with petioles up to 20 cm. long, repand or subentire, the cauline 2–6 cm. long, 1.5–5 cm. wide, irregularly crenate-serrate or subentire, sessile, clasping; panicle diffuse, trichotomous and dichotomous, the branches very slender; fruit broadly ovate, 3-nerved on one face, 1-nerved on the other, glabrous, the pappus 12-rayed.

Huánuco: Cani, 2,600 meters, 3433.—Junín: Pariahuanca, 2,400–2,500 meters, *Weberbauer 6591*.—Puno: Sandía, *Weberbauer 531* (type).

Valeriana bambusicaulis Killip, Journ. Wash. Acad. Sci. 15: 455. 1925.

A coarse, erect herb, about 3 meters high, the stem up to 2 cm. in diameter, glabrous; leaves of the sterile shoots ovate, long-petioled; basal leaves imparipinnate, the lateral leaflets 4-5-jugate, the terminal and lateral leaflets subequal, oblong or oblong-lanceolate, up to 6 cm. long and 3 cm. wide, acute, entire, finely puberulent or glabrescent, the cauline leaves linear-lanceolate, 2-4 cm. long; panicle diffuse, trichotomous and dichotomous; fruit oblong-lanceolate, 3-nerved on one face, 1-nerved on the other, thick-margined, glabrous, the pappus 6-rayed.

Huánuco: Tambo de Vaca, 3,800 meters, 4463 (type).

Valeriana cephalantha Schlecht. Linnaea 28: 483. 1856.

Plant caespitose, essentially glabrous throughout, the root branched toward the apex; stem about 30 cm. high, bearing 1-2 pairs of sessile, pinnate leaves; basal leaves slender, narrowly lanceolate in general outline, 5-10 cm. long, 6-8 mm. wide, petiolate, imparipinnate, the leaflets cuneiform, digitate-pinnatifid or lobulate, the segments obtuse, the cauline leaves similar but smaller, 1-2 pairs; flowers in dense heads forming an interrupted spike, the lower heads usually borne on short branches; bractlets broadly obovate, about 3 mm. wide; fruit broadly ovate, purple-spotted, 3-nerved on one face, 1-nerved on the other, the pappus 5-rayed.

Puno: Tabina, *Lechler 2044* (type).

Valeriana coarctata R. & P. Fl. 1: 40. pl. 68, f. 8. 1798. *V. armeriaefolia* Schlecht. Linnaea 28: 485. 1856.

Root fusiform, thickened at the apex; stem erect, 5-40 cm. high, glabrous; basal leaves linear to lanceolate-spatulate, up to 15 cm. long and 1 cm. wide, subacute, ciliolate, otherwise glabrous or sparingly pilosulous, often subrevolute, fleshy, the cauline leaves ternate or quaternate, sometimes wanting; inflorescence spicate, the heads all sessile, contiguous or usually the lowest one distinct; fruit narrowly lance-oblong, nerveless, glabrous, the pappus 6-8-rayed.

Peru: "Andes," *Maclean*.—Lima: Casapalca, 866. Baños, *Wilkes Expedition*.—Huánuco: Cerro de Pasco, *Mathews 668*.—Junín: Huasa-huasi, *Ruiz & Pavón* (photo. of type).—Ayacucho: Huanta, 4,000-4,200 meters, *Pearce* in 1867.—Puno: San Antonio, *Lechler 1798* (type of *V. armeriaefolia*).—Cuzco: Panticalla Pass, 3,600 meters, *Cook & Gilbert 1247*. "Huarituru."

The Ruiz and Pavón illustration is best matched by the Mathews specimen. Most of the other ones cited above have much slenderer leaves, and agree well with the type of *V. armeriaefolia*.

Valeriana Condamoana Graebn. Bot. Jahrb. 37: 446. 1906. *V. Romanana* Graebn. loc. cit.(?).

Plant caespitose, glabrous throughout, with a stout, branched rootstock; leaves rosulate, rarely a pair of cauline ones present, narrowly oblanceolate or spatulate, 3–9 cm. long, including the petiole, the blade up to 4 mm. wide; scapes 4–25 cm. high; inflorescence an elongate head or an interrupted spike, the lowest head sometimes as much as 5 cm. below the next one; bractlets obovate, dark at the center; fruit broadly ovate, 1-nerved on one face, nerveless on the other, the pappus 10-rayed.

Peru: Casapalta, 4,300 meters, *Ball* in 1882.—Junín: Yauli, 4,100–4,400 meters, 913; *Weberbauer* 311 (photo. of type seen).

Valeriana Romanana, based upon *Weberbauer* 2972, from Huaraz, Dept. Ancash (photo. of type seen), may be distinct, but additional material now available from the type locality of *V. Condamoana* indicates that the differentiating characters are not constant.

Valeriana connata R. & P. Fl. 1: 39. pl. 67, f. c. 1798. *V. connata* var. *nutans* Graebn. Bot. Jahrb. 37: 444. 1906.

Plant suffrutescent, about 60 cm. high; stems several, branched, leafy, finely pilosulous in 2 vertical lines, otherwise glabrous; leaves lanceolate, 2–3 cm. long, 4–7 mm. wide, acute, sessile, subconnate, ciliolate toward the base; inflorescence spiciform, the flowers in sessile or short-peduncled, subglobose clusters; fruit oblong, glabrous, obscurely 3-nerved on one face, 1-nerved on the other, pappose.

Junín: Diezmo, *Ruiz & Pavón* (fragment of type seen). Yauli, 4,400 meters, *Weberbauer* 349 (cited by Graebner).—Without locality, *Lobb*.

In the variety *nutans*, based on *Weberbauer* 2947, from Pichín, Department of Ancash, the flower clusters are all sessile.

Valeriana costata Schmale, Repert. Sp. Nov. 41: 294. 1937.

A shrub, essentially glabrous throughout, the branches terete, leafy; leaves lanceolate or oblong (or the upper ovate), up to 5 cm. long and 5 mm. wide, obtuse, entire or irregularly crenate, petiolate; cymes dense, congested at the ends of the branches; fruit ovate, strongly 3-ribbed on one face, 1-ribbed on the other, the ribs elevated.

Cajamarca: Cutervo (*Raimondi* 4673, type).

Valeriana decussata R. & P. Fl. 1: 42. pl. 70, f. b. 1798. *V. clematoides* Graebn. Bot. Jahrb. 37: 437. 1906. *V. melanocarpa* Killip, Journ. Wash. Acad. Sci. 15: 453. 1925.

Plant scandent, suffrutescent toward the base, the stem stout, villosulous or at length glabrous; leaves opposite or fascicled at the nodes, short-petioled, imparipinnate, the leaflets 2-3-jugate, lanceolate, linear-lanceolate, or ovate-lanceolate, acute or acuminate, remotely denticulate or entire, scaberulous above, sparingly to densely cano-tomentose beneath, the terminal leaflet 2-6 cm. long, larger than the lateral ones; panicle up to 40 cm. long, trichotomous and repeatedly dichotomous, the branches spreading or ascending; bractlets acute; fruit ovate, 1.5-2 mm. long, 3-nerved on one face, 1-nerved on the other, densely pubescent, black when mature, the pappus 10-rayed.

Ancash: Tallenga, 3,600-3,800 meters, *Weberbauer 2862* (type of *V. clematoides*).—Huánuco: Huánuco, *Ruiz & Pavón* (type). Mito, 2,700 meters, *1745*. Yanahuanca, 3,000 meters, *1211*.—Ayacucho: Pampalca, 3,200 meters, *Killip & Smith 23273*. Totorabamba, 3,500 meters, *Weberbauer 5463*.—Cuzco: Paucartambo Valley, *Herrera 1050a*. Cuzco, *Soukup 81*. Cerro de Cusilluyoc, 3,200-3,400 meters, *Pennell 14143*. Lucumayo Valley, *Cook & Gilbert 1311* (type of *V. melanocarpa*).—Department uncertain: Lacuihaurmi, *Savatier 1621*. Pintac, 4,000 meters, *Pearce* in 1867. "Polo-polo," "anamacai."

Valeriana dipsacoides Graebn. Bot. Jahrb. 37: 438. 1906. *V. maxima* Killip, Journ. Wash. Acad. Sci. 21: 351. 1931.

A coarse, erect, glabrous herb, 1.5 to 2.5 meters high, the stem up to 1 cm. wide at the base; leaves coriaceous, bright green, sub-lustrous, variable, simple, or pinnatifid nearly to the rachis, up to 20 cm. long and 7 cm. wide, entire or obscurely crenulate toward the apex, if simple the blade broadly elliptic to oblanceolate, acuminate, tapering to a narrowly winged petiole, if pinnatifid the terminal segment ovate, the lateral segments 1-3, approximate, oblong or ovate-oblong, up to 3.5 cm. long and 2 cm. wide, obtuse or sub-acute, much smaller than the terminal one, the petiole short, broadly winged; panicle diffuse, up to 75 cm. long, trichotomous and repeatedly dichotomous; fruit narrowly oblong-lanceolate, 3-nerved and glabrous on one face, 1-nerved and minutely puberulous on the other, the pappus 8-rayed.

Junín: Huacapistana, 1,700-1,900 meters, *Weberbauer 1980* (photo. of type seen); *Killip & Smith 24105* (type of *V. maxima*), *24171*.

Valeriana globiflora R. & P. Fl. 1: 43. pl. 65, f. b. 1798. *V. globifera* Pers. Syn. 1: 37. 1805, in error.

A low, caespitose herb with a thickened, fibrillose rootstock; leaves rosulate, fleshy, lanceolate in general outline, 2–4 cm. long, including a short petiole, 7–10 mm. wide, glabrous above, pilose beneath, imparipinnate or deeply pinnatifid, the rachis broad, the leaflets or segments sinuate-dentate or pinnately lobed, obtuse; scapes several, erect or divaricate, up to 10 cm. long, pilose; inflorescence a single terminal head, or spiciform with 1–2 pairs of additional, sessile or short-peduncled heads; bractlets narrowly obovate, blackish, pale at the margin; fruit broadly ovate, densely pilosulous on one face, glabrous on the other, obscurely 1-nerved, pappose.

Huánuco: Cerro de Pasco, 4,400 meters, *Kanehira 274*; *Pearce 21*.—Junín: Bombón, *Ruiz & Pavón* (photo. and fragment of type seen). La Oroya, *Kalenborn 134*.

Valeriana globularioides Graebn. Bot. Jahrb. 37: 445. 1906.

Plant caespitose, the root thick, subrepent, branched toward the apex; leaves mainly basal, obovate-spatulate, 2.5–4 cm. long, including a broad petiole, 7–9 mm. wide, obscurely crenate-dentate toward the apex, coriaceous, glabrous; scapes 3–5 cm. long; inflorescence capitate, solitary, subglobose; flowers perfect, the corolla limb 6–8-lobed; fruit pappose.

Ancash: Huaraz, 4,000 meters, *Weberbauer 2966* (photo. of type seen).

Valeriana globularis Gray, Proc. Amer. Acad. 5: 322. 1862. *V. pygmaea* Graebn. (?) Bot. Jahrb. 37: 446. 1906, non Turcz. 1852.

A low, caespitose herb, glabrous throughout, the rootstock very thick toward the apex, elongate at the base; leaves rosulate, linear or linear-spatulate, 2–4 cm. long including the petiole, the blade up to 3 mm. wide, entire; stems slender, 1–8 cm. high, leafless or rarely bearing 4 small, verticillate leaves; inflorescence a single globose head up to 1.2 cm. in diameter; fruit ovate, obscurely 1-nerved on each face, the pappus 10–12-rayed.

Lima: Río Blanco, 4,500 meters, *2986*. Casapalca, 4,700 meters, *875*.—Junín: Casacancha, *Wilkes Expedition* (type). Mt. La Juntai, 4,700 meters, *Killip & Smith 22078*. Yauli, 4,400 meters, *Weberbauer 367* (type of *V. pygmaea* Graebn.; photo. seen).

Valeriana Grisiana Wedd. Chlor. And. 2: 19. *pl. 49, f. A*. 1857. *V. linearifolia* Killip, Journ. Wash. Acad. Sci. 18: 500. 1928.

Plant suffrutescent, 30–75 cm. high, branched near the base, the branches erect, finely puberulent or glabrescent, the leaves fascicled

at the nodes in the lower half, opposite in the upper half, linear or linear-lanceolate, 2–4 cm. long, 2–4 mm. wide, obtuse, sessile, or the lower subsessile, entire or obscurely serrulate, subrevolute, glabrous or puberulent; inflorescence cymose-paniculate, the flowers in rather dense clusters, polygamo-dioecious, the bractlets purple toward the apex; fruit lance-ovate, glabrous, 3-nerved on one face, 1-nerved on the other, the pappus 12-rayed.

Cuzco: Cordilleras of Cuzco, *Gay* (type). Cerro de Cusilluyoc, 3,800–3,900 meters, *Pennell 13856* (type of *V. linearifolia*).

Valeriana Hadros Graebn. Bot. Jahrb. 37: 443. 1906.

Stem erect, about 1 meter high, stout, pilose, branched at the base, arising from a thick rootstock; basal leaves cuneate-obovate, 15–20 cm. long, 5–6 cm. wide, tapering to a short, winged petiole, coarsely and irregularly dentate, the teeth denticulate, the cauline leaves much smaller, sessile or subsessile, similarly toothed; panicle pyramidal, up to 15 cm. wide, the flowers in dense, sessile, subglobose clusters, on ascending branches; bractlets broadly obovate.

Cajamarca: Between Hualgayoc and Cajamarca, 4,100–4,200 meters, *Weberbauer 4228* (photo. of type seen).

Valeriana Herrerae Killip, Journ. Wash. Acad. Sci. 16: 572. 1926.

A slender herb, 15–25 cm. high, the root tuberous, fibrillose; stem simple, glabrescent; basal leaves long-petiolate, the blade ovate to orbicular-reniform, 1–2 cm. long, 0.6–2 cm. wide, obtuse or rounded, entire or undulate, membranous, glabrous or sparingly pilosulous, the cauline ones ovate or ovate-oblong, undulate-serrate, petiolate; inflorescence racemiform, the flowers in rather dense clusters; bractlets narrowly linear, less than 1 mm. wide, black, pale at the margin; flowers polygamous, the limb of the staminate ones 1.5–2 mm. wide; fruit lance-oblong, faintly 1-nerved on one face, nerveless on the other, probably pappose.

Cuzco: Hacienda Churú, Province of Paucartambo, 3,600 meters, *Herrera 1016* (type), 1413. Cerro de Colquipata, 3,900–4,000 meters, *Pennell 13744*. Apurímac Valley, *Herrera 3076b*. "Atoc-atoc."

Valeriana interrupta R. & P. Fl. 1: 42. pl. 67, f. a. 1798. *V. interrupta* var. *minor* Ball, Journ. Linn. Soc. 22: 43. 1885. *V. pedicularioides* Graebn. Bot. Jahrb. 37: 442. 1906.

Plant essentially glabrous throughout; root thickened, woody, usually elongate; stems several, erect, 10–100 cm. high, usually with

only a single pair of leaves; basal leaves up to 15 cm. long including the petiole, and 3 cm. wide, pinnate or deeply pinnatifid, the leaflets or segments highly variable, entire, pinnately lobed, deeply pinnatifid, or interruptedly bipinnate, membranous; inflorescence cymose or cymose-paniculate, compact or diffuse but the flowers clustered; flowers polygamous, the staminate with a limb 2.5–3 mm. wide, the limb of the others up to 1 mm. wide, the styles long-exserted; fruit oblong, 2–2.5 mm. long, more or less turgid when mature, glabrous, obscurely 1-nerved, the pappus 10-rayed.

Lima: Canta, 2,700–3,200 meters, *Pennell 14335*. Antaicocha, 3,600–3,800 meters, *Pennell 14645*. Viso, 2,700 meters, 592. Río Blanco, 3,500 meters, *Killip & Smith 21552*. Huamantango, *Mathews 513*. Chicla, 3,600–3,900 meters, *Ball* (type of *V. interrupta* var. *minor*). Between Anchi and Chicla, 3,450–3,700 meters, *Weberbauer 208a* (type of *V. pedicularioides*); *Savatier*. Baños, *Wilkes Expedition*.—Junín: Diezmo, *Ruiz & Pavón* (type). Yauli, 4,100 meters, 914. Huancayo, 3,300–3,500 meters, *Killip & Smith 22128*.

Valeriana interrupta* var. *elator (Graebn.) Killip, comb. nov. *V. pimpinelloides* Graebn. Bot. Jahrb. 37: 442. 1906(?). *V. elator* Graebn. op. cit. 443.

Plant coarser, the leaves larger, the basal up to 35 cm. long including the petiole, and 12 cm. wide, the cauline leaves usually more than 1 pair.

Cajamarca: San Pablo, 2,200–2,400 meters, *Weberbauer 3859* (type of *V. elator*; photo. seen).—Lima: Huaros, 3,300–3,600 meters, *Pennell 14701*. Atocongo, 250–500 meters, *Pennell 14771*. Near Lima, 150 meters, 5856; *Rose 18587*; *Wilkes Expedition*; *Savatier 1458*. San Bartolomé, *Savatier 1623*. Matucana, 2,400 meters, 122. Chicla, 3,600–3,900 meters, *Ball*.—Arequipa: Misti, 3,300–3,400 meters, *Pennell 13222*.

This is the commonest species of *Valeriana* along the Lima-Oroya railroad, and apparently extends northward to Cajamarca and southward to Arequipa. The variety merges into the typical form and also, in leaf shape, into *V. pinnatifida*, under which name some of the material cited above was distributed. *V. pimpinelloides*, described from Ocos, Department of Ancash (*Weberbauer 2719*, type, photo. seen), appears to be only a variant with the leaf segments more obovate.

Valeriana isoetifolia Killip, Journ. Wash. Acad. Sci. 15: 456. 1925.

Plant caespitose, the root woody, branched above; leaves rosulate, narrowly linear, almost acicular, 1.5–2.5 cm. long, up to 2 mm. wide, acute, scabrous, minutely ciliolate; stems slender, 8–11 cm. long, finely and sparingly pubescent, bearing at or above the middle 3–4 verticillate leaves; inflorescence a single, subglobose head 1–1.5 cm. in diameter; fruit oblong, 2.5 mm. long, glabrous, the pappus 6-rayed.

Huánuco: Tambo de Vaca, 4,000 meters, 4424 (type). Muña, 3,600–3,800 meters, *Pearce 189*.

Valeriana jasminoides Briq. Ann. Conserv. Jard. Bot. Genève 17: 336. 1914.

A scandent or subscandent herb, pilosulous nearly throughout, or the stem glabrescent; leaves densely fascicled at the nodes, imparipinnate, the leaflets 7–10-jugate, approximate, elliptic or narrowly lanceolate, 1–2 cm. long, 1–7 mm. wide, obtusely acuminate, subsessile, entire or serrulate, the terminal one smaller than or subequalling the lateral ones, sometimes irregularly incised; inflorescence paniculate, trichotomous and dichotomous, the flowers in loose clusters; fruit about 3 mm. long, glabrous or sparingly pilosulous, 3-nerved on one face, 1-nerved on the other, the pappus 12-rayed.

Cuzco: Cerro de Cusilluyoc, 2,200–2,400 meters, *Pennell 13968*; at 3,500–3,800 meters, *Pennell 13896*. Also in western Bolivia.

In the Peruvian material the leaflets are more toothed than in the Bolivian specimens at hand. There is considerable variation in the size and shape of the leaflets, even in the specimens representing a given number.

Valeriana ledoides Graebn. Bot. Jahrb. 37: 445. 1906.

A low, subrepent shrub, the stems ascending, up to 20 cm. high, densely tomentose; leaves oblong or linear-oblong, 1–1.5 cm. long, 3–5 mm. wide, obtuse, entire or obscurely crenate-dentate, tomentose beneath; inflorescence cymose, contracted, hemispheric; fruit oblong, epappose(?).

Huánuco: Monzón, 3,300–3,400 meters, *Weberbauer 3710* (type).

Valeriana lyrata Vahl, Enum. Pl. 2: 4. 1805. *V. remota* Ball, Journ. Linn. Soc. Bot. 22: 42. 1885. *V. oxyrioides* Graebn. Bot. Jahrb. 37: 444. 1906.

Plant glabrous throughout, the stems few or several, erect, 10–50 cm. high, from a thick, woody root; basal leaves usually lyrate with 1 or 2 lobes, occasionally entire and elliptic-oblong,

3–6 cm. long, 0.5–2 cm. wide, long-petioled, the cauline leaves 1–2 pairs, sessile, lanceolate or linear-lanceolate, deeply pinnatifid at least toward the base, 1.5–3 cm. long; inflorescence spicate, the heads all sessile or the lower short-peduncled, contiguous or the lower remote; fruit ovate-lanceolate, about 2.5 mm. long, obscurely 1-nerved on one face, nerveless on the other, the pappus 6-rayed.

Lima: Chicla, 3,600–3,900 meters, *Ball* in 1882 (type of *V. remota*); *Weberbauer 236* (type of *V. oxyrioides*). Río Blanco, 3,500–4,500 meters, 3007; *Killip & Smith 21650*. Baños, *Wilkes Expedition*.—Without locality, *Jussieu* (type); *Savatier*.

Valeriana Macbridei Killip, Journ. Wash. Acad. Sci. 15: 454. 1925. *V. hirsutissima* Killip, loc. cit.

An erect herb, 60 cm. or more high, the lower part of the stem and the lower leaves densely hirsute, the pubescence scantier upwards; leaves imparipinnate (those of the sterile shoots sometimes simple), the leaflets membranous or subcoriaceous, acute or obtuse, remotely denticulate or serrulate, the terminal leaflet of the basal leaves much larger than the lateral ones, subequal to the lateral ones in the case of the cauline leaves, the lateral leaflets 2–5-jugate, sessile or subsessile; panicle diffuse, trichotomous and repeatedly dichotomous; fruit lance-oblong, 3-nerved and glabrous on one face, 1-nerved and finely pilosulous on the other, the pappus 8-rayed.

Huánuco: Río Santo Domingo, 1,200–1,500 meters, 3686 (type), 4240. Pampayacu, 1,000 meters, 5118 (type of *V. hirsutissima*).

Valeriana malvacea Graebn. Bot. Jahrb. 37: 439. 1906.

An erect or subscandent, suffrutescent herb, 60–100 cm. high, the stem pilosulous; leaves cordate-ovate, 3–9 cm. long, 1.5–5 cm. wide, acuminate, denticulate or subentire, petiolate, densely pilosulous; the hairs stellate on the lower surface; panicle diffuse, trichotomous and dichotomous; fruit oblong-ovate, glabrous; 3-nerved on one face, 1-nerved on the other, the pappus 8-rayed.

Junín: Huacapistana, 2,600–2,800 meters, (*Weberbauer 2197*, type); *Killip & Smith 24356*.

Valeriana Mathewsii Briq. Ann. Conserv. Jard. Bot. Genève 17: 345. 1914. *V. hyalinorhiza* R. & P. sensu HBK. Nov. Gen. & Sp. 3: 331. 1819, non R. & P. *V. laevigata* Willd. ex Steud. Nom. Bot. 869. 1821(?). *V. Humboldtii* Hook. & Arn. in Hook. Bot. Misc. 3: 365. 1833(?).

Plant essentially glabrous throughout; root tuberous; stem solitary, erect, about 40 cm. high; basal and lower cauline leaves

ovate, about 3 cm. long and 2 cm. wide, obtuse, irregularly crenulate, the petioles 3–3.5 cm. long; upper cauline leaves linear-lanceolate, deeply pinnatifid; panicle more than 20 cm. long, the lower branches very slender, about 5 cm. long; fruit (immature) ovate, verruculose-puberulent, the pappus 6(?)-rayed.

Amazonas: Chachapoyas, *Mathews* (type).

I have not seen the Humboldt and Bonpland specimen referred to *V. hyalinorrhiza* R. & P., to which Hooker and Arnott assigned the name *V. Humboldtii*. It presumably came from northern Peru, and the description in the *Nova Genera et Species Plantarum* applies well to the plant later described as *V. Mathewsii*. Graebner cites (Bot. Jahrb. 3: 48) a Humboldt specimen from "Cusa," Peru, in the Berlin herbarium as *V. laevigata* Willd., a manuscript name first listed by Steudel. "Cusa" may be an error for Cascas, in the Department of Cajamarca, a locality visited by Humboldt and Bonpland.

Valeriana micropterina Wedd. Chlor. And. 2: 26. pl. 49, f. B. 1857.

Plant essentially glabrous throughout, cespitose, the root thick; stems erect, 15–40 cm. high, leafless or with 1–2 pairs of pinnate, sessile leaves; basal leaves numerous, linear or linear-lanceolate in general outline, 4–15 cm. long, including a petiole nearly as long as the blade, imparipinnate, the leaflets 12–15-jugate, opposite or subalternate, subequal, ovate or lanceolate, 3–10 mm. long, 2–4 mm. wide, obtuse or subacute, sessile or short-petiolulate; flowers in dense heads forming an interrupted spike, rarely the lower heads on short branches; flowers polygamo-dioecious, the pistillate ones smaller than the others; fruit ovate, obscurely 3-nerved on one face and 1-nerved on the other, the pappus 10-rayed.

Cuzco: Cerro de Cusilluyoc, 3,800 meters, *Pennell 13843*. Also in the mountains of Bolivia.

Valeriana nigricans Graebn. Bot. Jahrb. 37: 442. 1906.

Root fusiform; stem solitary, erect, 40–60 cm. high, subquadrangular; basal leaves ovate-cordate, 2–5 cm. long and wide, obtuse, obscurely crenate, petiolate, glabrescent, the cauline smaller, ovate, sessile or short-petiolate, crenate, pilose on the nerves beneath; panicle contracted, trichotomous, the flowers subcapitate.

Junín: Huacapistana, 1,900–2,000 meters, *Weberbauer 2001* (photo. of type seen).

Valeriana nivalis Wedd. Chlor. And. 2: 23. *pl.* 48, *f.* A. 1857.

Plant caespitose, the root thick, branched above; stems several, erect, 5–10 (rarely up to 20) cm. high, glabrous; leaves mainly basal, oblong-spatulate or obovate-spatulate, the blade 1.5–3 cm. long, subabruptly tapering to the petiole, 5–13 mm. wide, obtuse or rarely subacute, entire or obscurely serrulate, coriaceous, glabrous; flowers in dense, solitary, terminal, globose heads up to 2 cm. in diameter, often 1–2 pairs of similar but smaller, peduncled heads below the terminal one; bractlets broadly oblong-obovate, 3–4 mm. wide; fruit ovate-oblong, glabrous, obscurely nerved, the pappus 6-rayed.

Junín: Hacienda Runatullu, 4,500 meters, *Weberbauer 6632*.—Arequipa: Nevado de Chachani, 4,300–4,600 meters, *Pennell 13302*. Arequipa, *Stafford 368*.—Moquehua: Carumas, 4,500 meters, *Weberbauer 7316*.—Puno: *Lechler 1708*.—Cuzco: Paucartambo Valley, 3,800–4,200 meters, *Herrera 1092, 2187, 2314*. Also in Bolivia.

Valeriana oblongifolia R. & P. Fl. 1: 40. *pl.* 65, *f.* a. 1798.

A low herb, with a thickened, fibrillose root; stems several, up to 10 cm. long, erect or spreading, pilose; basal leaves oblong, 2–3.5 cm. long, 1–2 cm. wide, obtuse, abruptly narrowed to the petiole, irregularly dentate, pilose, the cauline leaves a single pair, linear-lanceolate, 1.5–2 cm. long, sessile, lacinate-dentate; inflorescence a single compact corymb; fruit oblong, apparently pappose.

Huánuco: Cerro de Pasco, *Ruiz & Pavón* (photo. of type seen).

Valeriana paniculata R. & P. Fl. 1: 41. *pl.* 70, *f.* a. 1798.

Plant hirsute or hirsutulous, the root woody, fibrillose; stem 60–100 cm. high; basal leaves and those of the sterile shoots simple, cordate-ovate to ovate-oblong, 2–7 cm. long, 1.5–3.5 cm. wide, acute or acuminate, cordate or rounded at the base, entire or denticulate, the cauline leaves simple, or imparipinnate with 1–3 pairs of oblong or ovate-oblong lateral leaflets; panicle diffuse, trichotomous and repeatedly dichotomous; fruit lance-ovate, 3-nerved on one face, 1-nerved on the other, glabrous, the pappus 8-rayed.

Huánuco: Muña, *Ruiz & Pavón* (fragment of type seen). Panao, 2,700 meters, *3628*. Chaglla, 2,700 meters, *3645*. Tambo de Vaca, 4,000 meters, *4408*. Huacachi, 2,000 meters, *4185*. Between Huánuco and Pampayacu, *Kanehira 281*.—Ayacucho: Choimacota Valley, 3,400–3,500 meters, *Weberbauer 7525*. “Macaе.”

These specimens vary in the degree of indument, and most of them have some of the cauline leaves simple, not all of them pinnate as shown by the Ruiz and Pavón illustration.

Valeriana Pardoana Graebn. Bot. Jahrb. 37: 440. 1906.

A woody vine, climbing to 3 meters, the internodes elongate; leaves ovate-lanceolate, 4–10 cm. long, 2.5–3 cm. wide, entire, acuminate at both ends, petiolate, sparsely pubescent beneath; inflorescence diffuse, the branches very slender, the flowers rather evenly spaced out on the ultimate, filiform branches; fruit oblong, about 1 mm. long.

Junín: Huacapistana, 1,800–2,000 meters, *Weberbauer 2145* (type).

Valeriana parvula Killip, Journ. Wash. Acad. Sci. 18: 500. 1928.

A low, caespitose herb, essentially glabrous throughout, the root thick; leaves orbicular or ovate-orbicular, 7–10 mm. long, 7–8 mm. wide, rounded at the apex, abruptly narrowed to a winged petiole up to 10 mm. long; stems several, erect or decumbent, 2–3 cm. long, leafless or with a pair of small, linear leaves at the base of the inflorescence; inflorescence a terminal cyme about 1 cm. long and wide; fruit broadly lance-ovate, 1-nerved on one face, obscurely 3-nerved on the other, apparently epappose.

Cuzco: Cerro de Colquipata, 4,000–4,200 meters, *Pennell 13756* (type).

Valeriana Pavonii Poepp. in Poepp. & Endl. Nov. Gen. & Sp. 3: 16. *pl.* 215. 1845.

A vine, woody at least toward the base; leaves ovate-lanceolate or oblong-lanceolate, averaging about 4–6 cm. long and 2.5–3 cm. wide, acuminate at both ends, entire, glabrous, sometimes pilosulous on the nerves beneath; panicle diffuse, the branches pubescent, the flowers usually in clusters of 2 or 3; mature fruit about 3 mm. long and 2 mm. wide, glabrous or finely pilosulous, the pappus 15–20-rayed.

San Martín: Zepelacio, 1,200–1,600 meters, *Klug 3366*. Tarapoto, *Spruce 4356*.—Amazonas: Chachapoyas, *Mathews* in 1830.—Huánuco: Huacachi, 2,000 meters, *4093*. Pampayacu, 1,000 meters (*Poeppig*, type); *5063*.—Junín: Huacapistana, 1,800 meters, *Killip & Smith 24162*.—Ayacucho: Carrapa, 1,000 meters, *Killip & Smith 22464*.—Cuzco: Cerro de Cusilluyoc, 2,300 meters, *Pennell 14023*. Widely distributed in the Andes between 1,000 and 3,000 meters altitude.

This is one of the commonest species of *Valeriana* in the northern Andes, and it is hard to believe that it was not described until 1845. *V. laurifolia* HBK., the identity of which has never been fully established, may well be the earliest name for this species.

Valeriana Pennellii Killip, Journ. Wash. Acad. Sci. 18: 499. 1928.

Plant glabrous throughout, the root thickened, the stem erect, 40–45 cm. high; basal leaves 15–25 cm. long, including a petiole longer than the blade, imparipinnate, the terminal leaflet ovate, 1.5–2 cm. long, obtuse, entire, the lateral leaflets 4–6-jugate, ovate or ovate-lanceolate, 5–8 mm. long, 3–5 mm. wide, sessile, entire, the cauline leaves 1 pair, similar but smaller, subsessile; inflorescence spiciform, the upper heads sessile on the main axis, the lower sessile on short branches; bractlets obovate-spatulate, 1.5–2 mm. wide; fruit oblong, purple-spotted, obscurely 1-nerved on one face, nerveless on the other, the pappus 6-rayed.

Cuzco: La Roya, 4,400–4,500 meters, *Pennell 13510* (type).

Valeriana pilosa R. & P. Fl. 1: 39. *pl. 66, f. a.* 1798. *V. longifolia* var. *pilosa* Wedd. Chlor. And. 2: 21. 1857.

Plant erect, about 30 cm. high, the rootstock thickened; stem pilose, often very sparingly so or glabrescent; basal leaves numerous, linear-lanceolate or narrowly spatulate, 10–15 cm. long, 0.5–1.5 cm. wide, acuminate or subobtuse, tapering to a poorly defined, sheathing petiole, glabrescent or faintly pilose, the cauline leaves linear, 1–4 cm. long; inflorescence narrow, trichotomously few-branched, the flowers in dense clusters; bractlets obovate; fruit 1.5–2 mm. long, glabrous, obscurely 3-nerved on one face and 1-nerved on the other, the pappus 6-rayed, pilose.

Amazonas: At 2,700–3,300 meters, *Williams 7580*. Chachapoyas, *Mathews 66*.—Huánuco: Mito, 1812, 3352.—Junín: Diezmo (*Ruiz & Pavón*, type).

In the specimens cited above the leaves vary somewhat from those of the Ruiz and Pavón illustration, and the indument is so scant that the specific name *pilosa* is scarcely appropriate. *Macbride 3352* has leaves up to 20 cm. long and 2.5 cm. wide, thus being intermediate between this species and *V. Weberbaueri*, and his No. 1812 bears a strong similarity to *V. sphaerocephala*.

Valeriana pinnatifida R. & P. Fl. 1: 40. *pl. 69, f. b.* 1798.

An erect herb, 30 cm. high or more, glabrous throughout except the pubescent nodes and fruit; root tuberous; basal and lower

cauline leaves petiolate, ovate or ovate-lanceolate, entire, irregularly crenate-dentate, or pinnatifid, up to 20 cm. long, including the petiole, and 6 cm. wide, membranous, the upper cauline leaves sessile, pinnatifid, the segments often toothed; inflorescence cymose or cymose-paniculate, the flowers clustered, polygamous, the staminate with a limb about 2 mm. wide, the limb of the others about 1 mm. wide; fruit flattened, broadly ovate, about 2.5 mm. long and 2 mm. wide, densely pilosulous and purple-mottled on both faces, the pappus 10-rayed.

Lima: Lima, *Ruiz & Pavón* (type); *Nation* in 1862. Amancaes, 200–400 meters, *Pennell* 14809; *Mathews* 727. Obrajillo, *Wilkes Expedition*. Matucana, 2,400 meters, 146.—Junín: Huariaca, 2,900 meters, 3101.

This species has often been confused with *V. interrupta*, probably because the leaves of that species often closely resemble those shown in *Ruiz and Pavón's* illustration of *V. pinnatifida*. The *Pennell* and the *Mathews* specimens very closely correspond to the original description of the lowest leaves being entire; they have broadly ovate, densely pubescent fruits, which may serve as an additional differentiating character.

Valeriana plectritoides Graebn. Bot. Jahrb. 37: 441. 1906. *V. oligodonta* Killip, Journ. Wash. Acad. Sci. 21: 351. 1931(?).

Root thickened; stems few or numerous, erect, up to 30 cm. high, essentially glabrous; basal leaves long-petioled, the blades ovate to broadly rhombic-ovate, up to 5 cm. long and 4 cm. wide, obtuse, gradually or subabruptly narrowed to the petiole, irregularly sinuate-dentate, crenate-dentate, or denticulate, flabellate-nerved, glabrous or sparingly ciliate, membranous, the cauline leaves lanceolate or subrhombic, subsessile; flowers in dense, subglobose heads terminal or in long-peduncled, axillary cymes or interrupted spikes; bractlets obovate or linear-spatulate, about 1.5 mm. wide, pale or rufescent; flowers polygamous, the staminate ones the largest, the limb 3–4 mm. wide; fruit ovate-lanceolate, obscurely 1-nerved on one face, nerveless on the other, glabrous, pappose.

Puno: Cuyocuyo, 3,800 meters, *Weberbauer* 928 (photo. of type seen). Sacsahuamán, 3,500–3,600 meters, *Herrera* 2190 (type of *V. oligodonta*). Cuzco, 3,600 meters, *Stafford* 245.

Valeriana plectritoides* var. *pallida Graebn. loc. cit.

Plant slender, many of the stems divergent; flower clusters smaller.

Puno: Cuyocuyo, 3,800 meters (*Weberbauer 928a*, type). Aranca, 4,100–4,300 meters, *Pennell 13438*. Here perhaps belongs also *Pennell 13438a*, which has a lax inflorescence.

Additional collecting must be done in southeastern Peru before final disposition of this species and its close relatives, *V. Herrerae*, *V. sphaerocephala*, and *V. parvula*, can be made. In *V. oligodonta* the leaves are much larger and the inflorescence is more condensed than in the type of *V. plectritoides*. The variety *pallida* is very similar to *Plectritis samolifolia* in general appearance.

Valeriana pycnantha Gray, Proc. Amer. Acad. 5: 322. 1862.

A low, caespitose herb, glabrous throughout, the rootstock woody, thickened; leaves rosulate, linear-spatulate, 2–3 cm. long, 3–5 mm. wide, tapering gradually to a broad petiole, entire, carnosae; stem stout, 1–4 cm. long, bearing near the middle 2 or 3 oblong, sessile, verticillate, carnosae leaves; head solitary, ovoid or subglobose, about 1.5 cm. in diameter; fruit narrowly ovate-oblong, the pappus 5–7-rayed, brownish.

Ancash: Cordillera de Pelagatos, *Weberbauer 7238*.—Lima: Alpacamarca, *Wilkes Expedition* (type). Casapalca, 4,700 meters, 823.—Without locality, *Maclean*.

Valeriana quadrangularis HBK. Nov. Gen. & Sp. 3: 326. 1819.

Plant suffrutescent, essentially glabrous throughout, the stem quadrangular, 30–40 cm. high; basal leaves ovate-oblong, 3–3.5 cm. long, about 1 cm. wide, obtusely acuminate, entire, or denticulate toward the base, petiolate, the cauline leaves similar, slightly smaller and subsessile; inflorescence cymose-paniculate, rather laxly dichotomous, the branches quadrangular; fruit linear-oblong, the pappus about 14-rayed.

Peru: "Andes," *Humboldt & Bonpland* (type).

This is a doubtful species, as to both the systematic position it should occupy and its place of occurrence. It very closely resembles *V. adscendens* Turcz., an Ecuadorean species. If actually from Peru, it was presumably collected in the northern part. It was described as a shrub, and has been placed next to *V. Grisiana* by Höck (Bot. Jahrb. 3: 49). The stem, however, is not densely leafy as in other species of this group.

Valeriana radicata Graebn. Bot. Jahrb. 37: 436. 1906.

Plant erect, glabrous throughout, 25–50 cm. high, with a thick, elongate root; leaves imparipinnate, 2–5-jugate, the basal about 15 cm. long, the leaflets broadly ovate or suborbicular, entire, the

terminal one about 3 cm. long and 2 cm. wide, the lateral ones much smaller, the cauline leaves with oblong, acute leaflets; panicle rather contracted, the lower branches elongate, the flowers in dense clusters; bractlets linear, less than 1 mm. wide; fruit ovate, pilose on one face, pappose.

Puno: Azángaro (*Weberbauer* 465, type). Near Puno, *Soukup* 31.—Cuzco: Cuzco, *Soukup* 52. "Phusa-phusa."

Valeriana renifolia Killip, Journ. Wash. Acad. Sci. 15: 453. 1925.

Root elongate; stems several, erect, about 65 cm. high, pilose below, glabrescent above; basal leaves subreniform or broadly ovate, 1.5–3.5 cm. long, 2.5–3 cm. wide, rounded, coarsely crenate-dentate or repand-dentate, petiolate, glabrescent or sparsely pilose, the cauline oblong or lanceolate-oblong, about 1.5 cm. long and 7 mm. wide, sessile, irregularly glandular-denticulate; panicle diffuse, the primary branches 2–4 at a node, repeatedly dichotomous, the flowers borne singly; fruit ovate, 1–1.5 mm. long, 3-nerved on one face, 1-nerved on the other, papillose, glabrous, the pappus 8-rayed.

Junín: Huariaca, 2,900 meters, 3099 (type).

Valeriana rufescens Killip, Journ. Wash. Acad. Sci. 21: 352. 1931.

Plant rufo-tomentellous nearly throughout; stems several, from a woody rootstock; leaves lanceolate in general outline, the basal numerous, 8–10 cm. long, including the petiole, 1.5–2 cm. wide, pinnate in the lower half, the leaflets oblong or oblong-spatulate, serrate, pinnatifid in the upper half, the cauline leaves few, similar to the basal, sessile or short-petioled; inflorescence racemose-paniculate or pyramidal, 7–8 cm. long, 2–2.5 cm. wide, the flowers in subglobose clusters on short branches; flowers apparently dioecious, the limb of the staminate ones nearly 4 mm. wide, deeply lobed, that of the pistillate ones 1.5–2 mm. wide; fruit narrowly oblong, obscurely 3-nerved on one face and 1-nerved on the other, the pappus 8-rayed.

Huánuco: Munna (Muña?), 3,800–3,900 meters, *Weberbauer* 6786 (type).

Valeriana scandens L. Sp. Pl. ed. 2. 47. 1762.

A slender, herbaceous vine, glabrous throughout; leaves trifoliate, long-petiolate, membranous, the leaflets repand or sinuate-dentate, rarely entire, the terminal one broadly ovate, rounded or

cordate at the base, the lateral ones lance-ovate, oblique; panicles axillary and terminal, lax, diffuse; fruit about 3 mm. long, strongly 3-nerved on one face and 1-nerved on the other, glabrous, the pappus 10-rayed.

Widely distributed in the warmer parts of the American tropics. Represented in Peru by the following variety, also of wide distribution:

Valeriana scandens var. **Candolleana** (Gardn.) C. Muell. in Mart. Fl. Bras. 6, pt. 4: 344. 1885. *V. Candolleana* Gardn. Lond. Journ. Bot. 4: 112. 1845.

Leaves simple, deltoid or ovate, acuminate, coarsely dentate, at least toward the base.

San Martín: Zepelacio, 1,200–1,600 meters, *Klug 3545*.

Valeriana serrata R. & P. Fl. 1: 40. *pl. 68, f. c.* 1798.

Plant caespitose, glabrous throughout, the root about 2.5 cm. thick at the apex, the stems erect, 15–20 cm. high, leafless except for a pair of foliaceous bracts at the base of the inflorescence; basal leaves lanceolate-spatulate, 2–5 cm. long, 0.5–1 cm. wide, acute, serrate toward the apex; inflorescence an interrupted spike, the heads all sessile; fruit oblong, pappose.

Ancash: Cheuchin, *Ruiz & Pavón* (type).

Valeriana sphaerocephala Graebn. Bot. Jahrb. 37: 441. 1906.

Plant essentially glabrous throughout; stem erect, 40–50 cm. high, from a thick rootstock; basal leaves ovate or lanceolate, 1–3 cm. long, 0.6–1.5 cm. wide, obtuse or subacute, entire or with 1–2 coarse, rounded teeth, tapering to a slender petiole up to 6 cm. long, the few cauline leaves linear, short-petioled or subsessile; inflorescence racemiform, the flowers in dense, distinct heads, all but the upper of which are peduncled, sometimes sessile on a short branch at the lower nodes of the inflorescence; fruit black, pappose.

Puno: Sandía, 3,100 meters, *Weberbauer 854a* (type).

Valeriana sphaerophora Graebn. Bot. Jahrb. 37: 440. 1906.

Plant glabrous throughout, the rootstock thick, the stems erect, 50–70 cm. high; basal leaves 10–15 cm. long, including a petiole about as long as the blade, 1–2 cm. wide, imparipinnate, the leaflets usually 3–6-jugate, subequal, entire, incised, or pinnatifid, the cauline 1–2 pairs, similar to the basal, subsessile; inflorescence racemose-paniculate, the upper heads sessile on the main axis, the lower sessile on short branches; fruit lance-ovate, blackish, pappose.

Puno: Sandía, Cuyucuyo, 3,100 meters, *Weberbauer 854* (type).

Valeriana Tessendorffiana Graebn. Bot. Jahrb. 37: 438. 1906.

Plant erect, 1–2 meters high, pilosulous or glabrescent, the root woody, fibrillose; lower leaves and those of the sterile shoots obovate-lanceolate or oblong-lanceolate, 6–10 cm. long, 2–4 cm. wide, acuminate, cordulate at the base or tapering gradually to a narrowly winged petiole, the upper leaves broadly ovate, sessile; panicle diffuse, trichotomous and dichotomous, the branches ascending; fruit lanceolate, about 3 mm. long, subcarinate, 3-nerved and glabrous on one face, 1-nerved and sparingly pilosulous on the other, pappose.

Huánuco: Monzón, 3,200 meters, *Weberbauer 3365* (type). Mito, 2,700 meters, 1399. Panoa, 2,700 meters, 3616.

Valeriana thalictroides Graebn. Bot. Jahrb. 37: 443. 1906.

Plant essentially glabrous throughout, the rootstock branched and thickened at the apex, long-tapering at the base, the stems numerous, erect or suberect, 10–40 cm. high; basal leaves long-petioled, linear-lanceolate, 10–20 cm. long, imparipinnate, 10–15-jugate, the leaflets lanceolate or ovate, 5–15 mm. long, 2–5 mm. wide, acute or subobtusely, subentire or with 2–4 teeth, the cauline leaves similar, smaller, subsessile; inflorescence racemose-paniculate or pyramidal, contracted, the flowers in dense heads, contiguous on the branches; fruit ovate, obscurely 1-nerved on one face, nerveless on the other, the pappus 10-rayed.

Lima: Río, 4,500 meters, 2993. Viso, 2,700 meters, 609. Ticlio, 4,600 meters, *Ledig 31*. Casacancha, *Wilkes Expedition*. Between Lima and Tarma, *Isern 2024*.—Junín: Santa Oroya (La Oroya?), 3,700–3,800 meters, *Weberbauer 2580* (type). Huarón, 4,200 meters, 1128. Anchi, *Savatier* in 1877.

Valeriana tomentosa HBK. Nov. Gen. & Sp. 3: 327. 1819. *V. friasana* Schmale, Repert. Sp. Nov. 41: 292. 1937.

A woody vine, the stem terete, cano-tomentose or villous with simple or stellate hairs; leaves cordate-ovate, 2–12 cm. long, 1–7 cm. wide, acuminate or subobtusely, denticulate or subentire, petiolate (petioles 1–2.5 cm. long), pilosulous above, cano-tomentose beneath, the hairs stellate; panicle diffuse, trichotomous and dichotomous; fruit broadly ovate, finely pilosulous, 3-nerved on one face, 1-nerved on the other, the pappus 10-rayed.

Piura: Above Palambla, 2,700–2,800 meters, *Weberbauer 6037*. Frías, Prov. Ayavaca, 2,900 meters, *Weberbauer 6403* (type of *V. friasana*). Also in the mountains of Ecuador.

Valeriana Trichomanes Graebn. Bot. Jahrb. 37: 445. 1906.

A low, caespitose herb, glabrous throughout, with a thickened rootstock; leaves linear in general outline, up to 4 cm. long and 1 cm. wide, petiolate, membranous, imparipinnate, the leaflets ovate or ovate-lanceolate, 2-4-dentate; stem 3-5 cm. high, leafless or with a pair of small, sessile, pinnate leaves; inflorescence a single subglobose or ovoid head; flowers polygamous, the pistillate and perfect ones with a narrow, elongate tube, the staminate with a short, broad tube.

Lima: Chicla, 3,720 meters, *Weberbauer 234* (photo. of type seen).

Valeriana urticaefolia HBK. Nov. Gen. & Sp. 3: 330. *pl. 275*. 1819. *V. erysimoides* Poepp. in Poepp. & Endl. Nov. Gen. & Sp. 3: 16. 1845.

An annual with a tuberous root; stem slender, simple or few-branched, hirsutulous with reflexed hairs, at least toward the base; leaves membranous, rotund-cordate, 2-4 cm. long, rounded or subacute, dentate or sinuate-dentate, petiolate, hirsutulous or glabrescent, the upper cauline ones sessile and usually somewhat smaller; inflorescence paniculate, the branches slender, ascending, 2-3 times dichotomous, the flowers secund, appressed to the rachis; fruit ovate, conspicuously 1-nerved on both faces, pilosulous on one face, glabrous on the other, thick-margined, the pappus 10-12-rayed, tardily developing.

Amazonas: Chachapoyas, *Mathews 3103*.—Cajamarca: Río Tabaconas, 1,200-1,300 meters, *Weberbauer 6260*.—Huánuco: Cochero (*Poeppig*, type of *V. erysimoides*). Piedra Grande, 1,500 meters, *3699*.—Department uncertain: San Carlos, *Mathews 1543*.—Without locality: *Mathews 2073*. Also in Colombia and Ecuador.

Valeriana variabilis Graebn. Bot. Jahrb. 37: 443. 1906.

An erect herb, 10-30 cm. high, glabrous throughout, with an elongate, thickened root; basal leaves numerous, long-petiolate, imparipinnate, the leaflets ovate or obovate, dentate, the terminal one 2-4 cm. long, 1-2 cm. wide, the lateral ones 3-5-jugate, much smaller, the lower pairs remote, the cauline leaves few, smaller and short-petioled; flowers in subglobose clusters which are solitary or numerous and paniculate.

Puno: Pucará, 3,700 meters, *Weberbauer 423* (photo. of type seen).

The above diagnosis is derived from the original description and the photograph of the type. Several other specimens, listed below,

seem to represent a robust form of this and are tentatively referred here. The plants attain a height of 2.5 meters, according to the collectors' notes; the leaves are up to 25 cm. long, the leaflets as much as 8 cm. long and 4 cm. wide; the inflorescence is diffusely paniculate. The general appearance of some of the specimens is much like that of *V. Warburgii*. The fruit is uniformly broadly ovate, abruptly tapering to a beak, and is densely pilosulous.

Ayacucho: Between Huanta and Pargora, 3,000 meters, *Killip & Smith 22184*.—Cuzco: Cuzco, *Soukup 253*. Pisac, 3,600–3,700 meters, *Pennell 13730*. Colquipata, 3,200–3,300 meters, *Pennell 13783*. Urubamba Valley, 3,000 meters, *Cook & Gilbert 1166*; *Herrera 1365, 3443*.

Valeriana verrucosa Schmale, *Repert. Sp. Nov.* 42: 293. 1937.

An erect herb, up to 150 cm. high, essentially glabrous throughout, the root napiform; basal and cauline leaves similar, membranous, imparipinnate, the leaflets 3–5-jugate, ovate-lanceolate or oblong, remotely serrate or subentire, the terminal one up to 5 cm. long, the lateral smaller; panicle diffuse, trichotomous and repeatedly dichotomous; fruit broadly ovate, about 2 mm. long and 1.5 mm. wide, strongly verrucose, the pappus 10-rayed.

Huancavelica: Colcabamba, 2,000–2,100 meters, *Weberbauer 6467* (type).—Ayacucho: Carrapa, 1,500 meters, *Killip & Smith 22378, 22410, 22429*.

Valeriana virgata R. & P. *Fl.* 1: 42. *pl.* 66, *f. b.* 1798.

A much branched shrub up to 100 cm. high, minutely puberulent throughout, rarely glabrescent; stem quadrangular, leafy, the branches virgate, erect; leaves imparipinnate, the leaflets numerous, narrowly linear and entire, or digitate-lobed, obtuse; inflorescence cymose or cymose-paniculate, usually contracted; flowers polygamous, the staminate the larger; fruit ovate, 3-nerved on one face, 1-nerved on the other, glabrous, the pappus 12-rayed.

Lima: Province of Canta, *Ruiz & Pavón* (photo. and fragment of type seen).—Chaglla, 3,200 meters, *Weberbauer 6690*.—Department uncertain: Pintac, 3,900 meters, *Pearce* in 1867.

Valeriana Warburgii Graebn. *Bot. Jahrb.* 37: 439. 1906.

An erect herb, 2 meters high or more, the stem and leaves sparingly pilose or glabrescent; basal and cauline leaves similar, imparipinnate, the leaflets interruptedly 5–8-jugate, opposite, or the lower alternate, broadly ovate to ovate-lanceolate, up to 9 cm. long and

5 cm. wide, acuminate or subobtusely, coarsely dentate or repand-dentate, membranous, sessile, or the lower petiolulate; panicle diffuse, trichotomous and repeatedly dichotomous; fruit lance-ovate, 3-nerved on one face, 1-nerved on the other, glabrous, the pappus 8-rayed.

Huánuco: Yanano, 2,400 meters, 3797.—Ayacucho: Carrapa, 1,500 meters, *Killip & Smith 22410*.—Moquehua: Carumas, 3,100 meters, *Weberbauer 7482*.—Puno: Sandía, 2,400 meters, *Weberbauer 555* (type).

Valeriana Weberbaueri Graebn. Bot. Jahrb. 37: 438. 1906.

Stem stout, 1–1.5 meters high, strongly ribbed, pilose; leaves lanceolate or linear-lanceolate, tapering to an obtuse apex, gradually narrowing at the base to a broad, sheathing petiole, coriaceous, glabrous above, densely reflexed-pilose on the midnerve beneath, the basal leaves 30–40 cm. long, 2–4.5 cm. wide, the cauline 7–15 cm. long, 1–3.5 cm. wide; inflorescence densely paniculate, the panicle up to 40 cm. long, trichotomous, the flowers in dense, subglobose clusters; bractlets broadly obovate, 2.5–3 mm. wide; fruit oblong, obscurely 1-nerved on one face, closely 3-nerved on the other, the pappus 6-rayed.

Huánuco: Monzón, 3,400–3,500 meters, *Weberbauer 3325* (type). Tambo de Vaca, 3,950 meters, 4427.

4. STANGEA Graebn.

Cespitose, acaulescent or subacaulescent, perennial herbs, the roots fusiform and thickened at the apex, or stoloniferous; leaves densely rosulate, fleshy; inflorescence sessile or terminating a short, thick scape, densely flowered, flat-topped, hemispheric, or subglobose; bracts cuneate or cuneate-obovate; flowers polygamous (always?); corolla limb 5-parted, the segments rounded; anthers linear or linear-oblong, sessile or short-filamentose; fruit nerveless, pappose.

The present treatment of this genus is derived almost wholly from Graebner's account. I have seen none of the specimens which he cites, though photographs of all but one of the type specimens are at hand. Further collecting will perhaps show that the lines of differentiation between some of the species are too fine.

Plant densely cespitose, without stolons.

Leaves oblong or elliptic-oblong, acute or subobtusely, sessile.

S. Erikae.

Leaves subrotund, ovate, or cordate, obtuse or rounded, abruptly narrowed to a petiole.

Leaves averaging 1–1.5 cm. wide; flowers rose...*S. Henrici*.

Leaves averaging 1.5–2.5 cm. wide; flowers yellowish white.

S. rhizantha.

Plant loosely caespitose, stoloniferous.

Leaves obtuse, glabrous, the petioles up to 3 cm. long; inflorescence subglobose.....*S. Paulae*.

Leaves acuminate, pilosulous, the petioles up to 1 cm. long; inflorescence hemispheric.....*S. Wandae*.

Stangea Erikae Graebn. Bot. Jahrb. 37: 450. 1906.

Plant densely caespitose, forming a hemispheric mass about 4 cm. high; leaves oblong, 0.8–2 cm. long, 4–6 mm. wide, acute or subobtuse, sessile; inflorescence very dense, shorter than the leaves; bracts obovate, mucronate.

Ancash: Yanganuco, near Yungai, 4,600–4,700 meters, *Weberbauer 3272* (photo. of type seen).

Stangea Henrici Graebn. Bot. Jahrb. 37: 449. 1906.

Root strongly thickened; leaves subrotund, 2–5 cm. long including a broadly linear, sheathing petiole, 1–1.5 cm. wide; stem very short or up to 3 cm. long; inflorescence about 1 cm. high and 5 cm. wide; bracts cuneate or obcordate; flowers rose; fruit oblong, about 3 mm. long, blackish.

Ancash: Huaraz, 4,500 meters (*Weberbauer 2962*, type). "Corihuájaj."

Stangea Paulae Graebn. Bot. Jahrb. 37: 450. 1906.

Plant loosely caespitose, the root stoloniferous; leaves laxly clustered, obovate or oblong-obovate, 1–1.5 cm. long, 4–5 mm. wide, obtuse, tapering gradually to a slender petiole 1.5–3 cm. long; inflorescence subglobose, sessile or short-peduncled; corolla tube gradually dilated toward the apex.

Puno: Ananca, Province of Sandía, 4,700–4,900 meters, *Weberbauer 1036* (photo. of type seen).

Stangea rhizantha (A. Gray) Killip, comb. nov. *Valeriana rhizantha* A. Gray, Proc. Amer. Acad. 5: 322. 1862. *Stangea Emiliae* Graebn. Bot. Jahrb. 37: 449. 1906.

Plant densely caespitose, the root fusiform, much thickened in the upper part; leaves closely rosulate, spatulate-rotund, cordate,

or broadly ovate, 1.5–4.5 cm. long including a broad petiole, 1–2.5 cm. wide, rounded at the apex; inflorescence very dense, sessile, flat-topped or depressed, 2–4 cm. wide; flowers yellowish white; fruit oblong, about 1 mm. long, the pappus 5-rayed.

Lima: Alparmarca, *Wilkes Expedition* (type). Río Blanco, 4,600 meters, 3030. Alpamina, 4,500 meters (*Weberbauer 5090*).—Junín: Hacienda Arapa, near Yauli, 4,400 meters, *Weberbauer 276* (photo. of type of *S. Emiliae* seen).

Stangea Wandae Graebn. Bot. Jahrb. 37: 450. 1906.

Plant stoloniferous; leaves subrosulate, ovate or lanceolate, 6–10 mm. long, 3–4 mm. wide, acuminate, pilosulous, verrucose, the petiole 5–10 mm. long, pilose; inflorescence short-peduncled, hemispheric, 1–2 cm. wide; corolla tube constricted at the apex.

Lima: Above Lima, 4,500 meters, *Weberbauer 3755* (photo. of type seen), (5116).

5. BELONANTHUS Graebn.

Subacaulescent, caespitose, perennial herbs, the caudex short, simple or few-branched, densely clothed with the persistent, coriaceous, stramineous, glabrous, sheathing bases of the old leaves; leaves rosulate, linear or linear-spatulate, thick, vaginate; cymes short-peduncled or subsessile, the 2 involucre bracts partially connate; flowers polygamous, epappose, the corolla with a long, slender tube, the limb 3-lobed.

This genus has recently been monographed by Schmale, Notizbl. Bot. Gart. Berlin 13: 23–26. 1936, and the present treatment is derived largely from it; few of the specimens there cited have been examined.

Inflorescence distinctly peduncled, the peduncle at least 2 cm. long.

B. longitubulosus.

Inflorescence subsessile, the peduncle much less than 2 cm. long.

Caudex very thick, scarcely branched but bearing 2–3 rosettes of leaves.....*B. angustifolius.*

Caudex slenderer, with several branches.

Leaves glabrous.....*B. crassipes.*

Leaves pubescent.

Leaves densely pilose-hispid; corolla lobes obtuse.

B. hispidus.

Leaves sparingly pilose and slightly ciliate; corolla lobes acute.....*B. spathulatus.*

Belonanthus angustifolius Schmale, Notizbl. Bot. Gart. Berlin 13: 25. 1936.

Plant up to 3 cm. high, the caudex scarcely branched, bearing 2-3 rosettes, the leaves linear-lanceolate, 1-2 mm. wide in the upper part, acute, sessile, entire, glabrous above the middle, ciliate below the middle, membranous; peduncle 5-10 mm. long; flowers sessile; corolla tube up to 6 mm. long.

Huánuco: Monzón, 3,700-4,000 meters (*Weberbauer 3321*, type). Also reported from Bolivia.

Belonanthus crassipes (Wedd.) Graebn. Bot. Jahrb. 37: 447. 1906. *Phyllactis crassipes* Wedd. Chlor. And. 2: 29. pl. 47, f. A. 1857. *Valeriana crassipes* Höck, Bot. Jahrb. 3: 56. 1882.

Plant about 6 cm. high, glabrous throughout; leaves linear or slightly spatulate, 2-3 cm. long, 1.5-2 mm. wide, acute, subcoriaceous; cymes sessile or with a very short peduncle; flowers sessile, the corolla lobes subacute.

Ancash: Huaraz, 4,000 meters (*Weberbauer 2965*). Type from Bolivia. "Huencormake."

Belonanthus hispidus (Wedd.) Graebn. Bot. Jahrb. 37: 447. 1906. *Phyllactis hispida* Wedd. Chlor. And. 2: 29. 1857. *Valeriana exscapa* Griseb. Berb. Amer. Aust. 57. 1857, name only. *V. hispida* Höck, Bot. Jahrb. 3: 56. 1882, non Turcz. 1852. *V. niphobia* Briq. Ann. Conserv. Jard. Bot. Genève 17: 347. 1914.

Plant 3-5 cm. high; leaves in densely fascicled rosettes, linear or slightly spatulate, 2-3 cm. long, excluding the sheaths, up to 2 mm. wide, acute or subacute, entire, submembranous, long-retrorse-ciliate and usually densely pilose-hispid; flowers sessile, the corolla lobes about 1 mm. long, obtuse.

Puno: Moho, Prov. Huancané, 3,100 meters, *Shepard 87*. Ayapata, *Lechler 1962* (photo. of specimen labeled "*V. exscapa* Griseb." seen). Type from Bolivia.

Belonanthus longitubulosus Schmale, Notizbl. Bot. Gart. Berlin 13: 25. 1936.

Plant up to 7 cm. high; leaves linear-spatulate, 3-6 cm. long, 0.5-3 mm. wide, acute, entire, densely short-pilose; inflorescence laxly capitate, the peduncle 2-2.5 cm. long; flowers sessile, the corolla tube 8-9 mm. long, the lobes oblong, 2 mm. long, rounded at the apex.

Cajamarca: Hualgayoc, 4,000–4,100 meters (*Weberbauer 3989*).—
Junín: Palca, 3,200–3,400 meters (*Weberbauer 2491*, type).

Belonanthus spathulatus (R. & P.) Schmale, Notizbl. Bot. Gart. Berlin 13: 26. 1936. *Valeriana spathulata* R. & P. Fl. 1: 40. pl. 68, f. b. 1798. *Phyllactis spathulata* Pers. Syn. 1: 39. 1805.

Plant up to 5 cm. high and 10 cm. wide; leaves linear or spatulate, 2–3 cm. long, 1–5 mm. wide, obtuse, sparingly pilose, slightly ciliate; peduncle stout, 2–3 mm. long; flowers sessile, the corolla tube 5–7 mm. long, the lobes ovate, nearly 2 mm. long, 1 mm. wide, acute.

Libertad: Huamachuco, 4,650 meters, *Weberbauer 7013*.—Lima: Río Blanco, 4,500 meters, *3011*.—Huánuco: Mito, 3,300 meters, *1898*.—Junín: Bombón, *Ruiz & Pavón* (type).

6. PHYLLACTIS Pers.

Acaulescent or subacaulescent, cespitose herbs, the root fusiform, becoming very thick toward the apex; leaves in dense rosettes, linear to oblong-spatulate, the sheathing base persisting; peduncles numerous and very short and stout or rather few and elongate and slenderer, the bracts connate toward the base, the flowers sessile, polygamous; corolla tube very short (not more than 4 mm. long), the lobes 3, rarely 4.

Peduncles 10–20 cm. long; bracts more than 2; leaves oblong-spatulate, more than 1 cm. wide, with many parallel nerves.

P. convallarioides.

Peduncles less than 1 cm. long; bracts 2; leaves linear or linear-lanceolate, not more than 1 cm. wide, 1-nerved.

Leaves linear-lanceolate, rigid, glabrous throughout. *P. rigida*.

Leaves narrowly linear or linear-subulate, subcoriaceous, ciliate in the lower half. *P. tenuifolia*.

Phyllactis convallarioides Schmale, Repert. Sp. Nov. 41: 294. 1937.

Root very stout, up to 2 cm. thick; leaves oblong-spatulate, 6–12 cm. long, 1.5–3 cm. wide, subobtuse, entire, or obscurely crenulate toward the apex, coriaceous, conspicuously parallel-nerved, ciliate and sparingly pilose in the lower half, glabrescent in the upper; peduncles 10–20 cm. long; bracts several, slightly connate; flowers in a compact cyme, sessile; corolla tube 3–4 mm. long, the limb 3–4-lobed, the lobes obtuse; fruit elliptic, 3–4 mm. long, glabrous.

Piura: Huancabamba, 3,400–3,500 meters, *Weberbauer 6089* (type).

Phyllactis rigida (R. & P.) Pers. Syn. 1: 39. 1805. *Valeriana rigida* R. & P. Fl. 1: 39. *pl. 65, f. c.* 1798.

Plants in dense, stemless tufts, the leaves radiate and flat on the ground, the blades linear-lanceolate, up to 5 cm. long and 1 cm. wide, entire, 1-nerved, pungent, rigid, glabrous, stramineous; peduncles stout, up to 1.5 cm. long, connate; corolla tube very slender, about 3 mm. long, the limb 3-lobed, the lobes triangular-ovate.

Cajamarca: Micuibamba, 4,500 meters, *Humboldt & Bonpland*.—Huánuco: Cerro de Pasco, 4,300 meters, *3075*.—Junín: Bombón (*Ruiz & Pavón*, type). Tarma, *Weddell*.—Apurímac: Sorococha Pass, 4,400 meters, *West 3728*. Also in Colombia and Ecuador.

Phyllactis tenuifolia (R. & P.) Pers. Syn. 1: 39. 1805. *Valeriana tenuifolia* R. & P. Fl. 1: 39. *pl. 65, f. d.* 1798.

Similar to *P. rigida* in habit and in the inflorescence; leaves narrowly linear or linear-subulate, 6–10 cm. long, 2–3 mm. wide, pungent, entire, 1-nerved, glabrous, ciliate in the lower half, subcoriaceous.

Lima: Huarochirí (*Ruiz & Pavón*).—Huánuco: Mito, 2,700 meters, *1796*.—Junín: Huasa-huasi, *Dombey* or *Ruiz & Pavón* (type).

CUCURBITACEAE. Gourd Family

To tell the story of the gourd or calabaza would be nearly to trace the story of mankind from the time of its written record, for the first dish and the first bottle may well have been fashioned from a fruit of some form of the vine botanists have named *Lagenaria siceraria*, or others (in Peru) “poro,” “matha,” or “mati,” the last two in the Quichua language. Records in literature exist from the ninth century, and there is a picture that dates from 1484. In Peru itself the fruit and seeds have been found in ancient graves of the Incas (Rochebrune, *Act. Soc. Linn. Bordeaux* 33: 347. 1879; Costantin & Bois, *Rev. Génér. Bot.* 22: 259. 1910; Safford, *Smithson. Rept.* 1916: 409. 1917); nevertheless the origin of the species remains obscure—cf. Harms, *Pflanzenreich* IV. 275, pt. 2: 206–208. 1924, who has brought together a remarkable fund of data on the gourd in all its phases.

Besides the usual use in Peru of gourds for vessels of all sorts, I found a small variety commonly carried by coca chewers to contain the supplementary lime. Such gourds have been found with

Peruvian mummies (Safford), and one of the modern examples brought back by a Field Museum expedition is to be seen at that institution. A large gourd seemed regularly to serve, from the coast to the interior, as the container for the popular beverage *chicha*.

Besides the gourd, the well known cultivated members of the family, such as *Cucurbita moschata* Duch., squash, and *C. Pepo* L., the "zapallo" or "pasin huara" (Tessmann) and "calabazas"—one of these may be the "calabaza vinatera" of Ruiz and Pavón, "which has a very good taste cooked"; *Cucumis Melo* L., "melón," and *C. sativus* L., cucumber, are, in my experience, not generally known or appreciated. Herrera found the squash adventive in the Valle del Urubamba, Tessmann the zapallo in Loreto. Spruce, it may be remarked, noted the native names "boga-boga" and "caiwa" for two Amazonian species not yet placed.

The following compilation, as the references indicate, is largely copied from the works of Cogniaux and Harms. It is with pleasure that I acknowledge the latter's willingness to prepare an account of the family for this work, and I regret that his duties as editor of *Pflanzenfamilien* finally did not permit him to do so. Other contributions to the part being ready, I had to attempt it myself, but, as a matter of fact, keys had been tentatively made for the collections in Dahlem, thanks to Professor Harms, who named all my own material and gave me access to all of that in his care. These facts are mentioned to explain any new interpretations.

As the genera are at best difficult to distinguish, three keys to them have been provided: one, completely artificial, leads, with a little experience, to most, at least, of the Peruvian species; another is according to Engler; and a third is an adaptation of that with Cogniaux's, for it has seemed to me that to regard the nature of the anthers, in view of their variation, as indicating the natural division of the family may not be correct, and one more nearly approaches, at least as regards the Peruvian groups, a lineal arrangement that appears natural by employing the position of the ovules as basic.

The student should be cautioned that filaments when short sometimes are not readily obvious; also, that occasionally stamens may be lightly coalescent in an early stage when really "free." In general, for simplicity, I have followed the earlier use of the term "calyx" (with sepals) to designate the receptacle, which term even modern authors have not always employed consistently.

Artificial key

Flowers always minute or small and all or at least part of them paniculate.

Stamens 5.

Flowers monoecious, the pistillate solitary in the axils with the staminate.....17. *Cyclanthera*.

Flowers dioecious, all paniculate.

Leaves 3-5-foliolate or simple and subentire.2. *Siolmatra*.

Leaves angulately or palmately lobed.....1. *Fevillea*.

Stamens 3.

Flowers rotate; stamens sessile or subsessile; leaves, if palmately lobed, shallowly so.

Filaments connate.

Leaves palmately angled or lobed.....18. *Echinocystis*.

Leaves entire.....5. *Pseudosicydium*.

Filaments free (anthers sometimes connate in a ring); leaves ovate, entire or angled-deltoid.

Leaves usually cordate; flowers all paniculate, dioecious.
3. *Sicydium*.

Leaves not at all cordate; pistillate flowers geminate.

4. *Pteropepon*.

Flowers more or less campanulate; filaments linear; leaves usually deeply palmate-lobed.....19. *Cayaponia*.

Flowers often large, sometimes small or minute but not paniculate, often racemose or corymbose at the summit of a peduncle, sometimes solitary.

Flowers more or less elongate-cylindric or ventricose, rarely subcampanulate; anthers sessile, dorsifixed or the filaments connate in *Elaterium*; staminate flowers typically racemose or spicate at ends of long peduncles.

Filaments wanting.

Style not ringed at the base; stamens 2.

Anther cells not flexuose; usually scandent herbs, glabrous to pilose.....7. *Anguria*.

Anther cells flexuose; a densely villous liana.

8. *Dieudonnaea*.

Style ringed or cupped at the base; stamens 3.

9. *Apodanthera*.

Filaments connate; flowers linear, with narrow, spreading lobes, suggesting Apocynaceae.....16. *Elaterium*.

Flowers campanulate or broadly cupulate; anthers not sessile, the filaments sometimes connate; staminate flowers sometimes racemose but usually not long-peduncled.

Calyx tube not inflated.

Leaves deeply divided except in *Luffa*.

Corolla 5-lobed, the broad calyx lobes refracted. 11. *Sicana*.

Corolla deeply 5-parted or with free petals.

Flowers large; anthers free or at first coherent; seeds many, horizontal.

Staminate flowers solitary (in the Peruvian species).

Stamens inserted at the throat; leaf lobes not lobed.

15. *Momordica*.

Stamens inserted in the tube; leaf lobes lobed.

13. *Citrullus*.

Staminate flowers racemose.....14. *Luffa*.

Flowers medium-sized; anthers coherent; seeds erect.

19. *Cayaponia*.

Leaves entire to more or less lobed (cf. *Luffa* with larger flowers); flowers small to minute.

Staminate flowers solitary or fasciculate; seeds erect; leaves entire or nearly so.....20. *Selysia*.

Staminate flowers often racemose or corymbose; leaves most often lobed; seeds various.

Filaments free, sometimes short.

Leaves entire or more or less lobed; seeds horizontal.

10. *Melothria*.

Leaves palmately lobed; seeds erect....19. *Cayaponia*.

Filaments connate or the anthers connate or annulate, sometimes solitary.

Leaves various; anthers annulate, capitately connate or solitary; seeds ascending.....17. *Cyclanthera*.

Leaves angulate-lobed; filaments connate, the anthers often free.

Flowers sordid or greenish; fruit coriaceous; seeds pendulous.....6. *Sicyos*.

Flowers white; fruit dry or baccate; seeds ascending.

18. *Echinocystis*.

Calyx tube inflated; flowers all solitary; seeds horizontal.

12. *Calycophysum*.

Technical key based on Engler's tribal key

A. Anther cells not horizontally annulate.

B. Stamens free or connate toward the base.

Stamens 5, rarely 4 (cf. *Luffa*).

Ovary 6-3-celled; fruit indehiscent; staminate sepals 5;
leaves angulately or palmately lobed.....1. *Fevillea*.

Ovary imperfectly 3-celled; fruit apically dehiscent; stamin-
ate sepals 3-5; leaves 3-5-foliolate or entire.2. *Siolmatra*.

Stamens 3, rarely 2.

Anther cells straight or slightly curved.

Seeds horizontal.

Style inserted in a cup or ring.

Calyx (receptacle) often nearly cylindric; anthers
sessile, dorsifixed.....9. *Apodanthera*.

Calyx campanulate; anthers basifixed...10. *Melothria*.

Style without a disk at the base or this obscure.

7. *Anguria*.

Seeds erect; leaves entire or 3-lobed.....20. *Selysia*.

Seeds pendulous.

Flowers dioecious, all paniculate; anthers not sessile;
fruit globose.....3. *Sicydium*.

Flowers monoecious, the pistillate geminate; anthers
sessile; fruit compressed, margined...4. *Pteropepon*.

Anther cells contorted, conduplicate-triplicate.

Calyx inflated, the lobed corolla included or nearly so.

12. *Calycophysum*.

Calyx not definitely inflated.

Stamens 3(-5); herbs.

Anther cells longitudinally triplicate; ovules ascending.

19. *Cayaponia*.

Anther cells flexuous; ovules horizontal.

Corolla 5-lobed, the broad calyx lobes refracted.

11. *Sicana*.

Corolla deeply 5-parted or with free petals.

Staminate flowers solitary (in Peruvian species).

Stamens inserted at the throat. 15. *Momordica*.

Stamens inserted in the tube. 13. *Citrullus*.

Staminate flowers racemose. 14. *Luffa*.

Stamens 2; a densely villous liana. 8. *Dieudonnaea*.

B. Stamens connate (cf. *Pteropepon*).

Flowers monoecious; leaves angulate or lobed. 6. *Sicyos*.

Flowers dioecious; leaves entire. 5. *Pseudosicydium*.

A. Anther cells more or less horizontally annulate.

Fruit oblique, gibbous.

Calyx (receptacle) cylindric. 16. *Elaterium*.

Calyx cup-like or shallower. 16. *Cyclanthera*.

Fruit not gibbous; calyx campanulate or shallow. 8. *Echinocystis*.

Technical key based on ovules and stamens

A. Ovules pendulous.

Filaments free or wanting.

Anthers not sessile.

Stamens 5.

Ovary 6-3-celled. 1. *Fevillea*.

Ovary imperfectly 3-celled. 2. *Siolmatra*.

Stamens 3. 3. *Sicydium*.

Anthers sessile, connate in a ring. 4. *Pteropepon*.

Filaments connate.

Flowers monoecious; anthers capitate. 6. *Sicyos*.

Flowers dioecious; anthers spreading. 5. *Pseudosicydium*.

A. Ovules horizontal; filaments free or wanting.

Anther cells straight or slightly curved.

Anthers sessile.

Style inserted in a cup or disk. 9. *Apodanthera*.

Style not annulate at the base or indistinctly so. 7. *Anguria*.

Anthers not sessile, the filaments sometimes short. 10. *Melothria*.

Anther cells flexuose.

Calyx inflated. 12. *Calycophysum*.

Calyx not inflated.

- Anthers sessile.....8. *Dieudonnaea*.
 Anthers not sessile but the filaments often short.
 Stamens inserted in the tube.
 Corolla 5-lobed; calyx lobes broad.....11. *Sicana*.
 Corolla 5-parted; calyx lobes narrow.
 Staminate flowers solitary.....13. *Citrullus*.
 Staminate flowers racemose.....14. *Luffa*.
 Stamens inserted in the throat.....15. *Momordica*.
 A. Ovules ascending or erect or, if rarely horizontal, the filaments connate.
 Filaments connate, the 3 anthers horizontal, not annulate.
 5. *Pseudosicydium*.
 Filaments or anthers connate, the cells flexuous or annulate.
 Fruit oblique, gibbous.
 Calyx (receptacle) cylindric.....16. *Elatarium*.
 Calyx cup-like or shallower.....17. *Cyclanthera*.
 Fruit not gibbous.....18. *Echinocystis*.
 Filaments free.
 Anther cells longitudinally triplicate.....19. *Cayaponia*.
 Anther cells not triplicate, straight.....20. *Selysia*.

1. FEVILLEA L.

Reference: Cogniaux, Pflanzenreich IV. 275, pt. 1: 4-9. 1916.

Lianas with thin, angulately or palmately lobed leaves and small, dioecious flowers all borne in panicles. Flower parts 5, the petals and sepals spreading. Filaments recurving; anthers 1-celled, straight. Pistillate flowers with or without staminodia. Styles 3; ovary perfectly 3-celled; ovules pendulous. Fruit indehiscent; seeds roundish, compressed.—The name, often written *Feuillea*, is in memory of Ludovic Feuillee, born in 1660, important early contributor to knowledge of the flora of Peru and Chile.

Fevillea cordifolia L. Sp. Pl. 1013. 1753; 7.

A woody vine with smooth, glabrous, often reddish branches and glabrous, coriaceous, subrotund or ovate leaves; petioles 3-7 cm. long; leaves without basal glands, somewhat cordate, entire or more or less angulate, 10-15 cm. long, about 10 cm. wide, rather ash-colored beneath; tendrils elongate, bifid; inflorescence narrow or much branched, with the peduncle 2-several dm. long, shortly

villous-puberulent or glabrate; pedicels filiform, 2–6 mm. long; flowers to nearly 4 mm. wide; calyx glabrous, the ovate lobes 2 mm. long, the broader, yellowish or flesh-red (Klug) petals twice as long; fruit globose, papillose, 10–12 cm. thick.—Var. *hederacea* (Poir.) Cogn. has very coriaceous, most often deeply three-lobed leaves. Neg. 8969. Bolivian species to be expected in southern Peru are *F. pergamentacea* (Karst.) Cogn. (Neg. 8971) and *F. Harmsii* (Kuntze) Schum. (Neg. 8970); both are biglandular at the truncate or scarcely emarginate leaf base, the leaves of the former often 3-lobed, acuminate, of the latter entire or obscurely lobed. The petals of *F. cordifolia* bear medially within a prominent, scythe-shaped flange or crest. Illustrated, Baillon, Hist. Pl. 8: 378.

San Martín: Juanjuí, 400 meters, in forest, flowers cream and rose, *Klug* 3825. Tarapoto, *Spruce* 4031. Juan Guerra, near Tarapoto, *Ule* 6549, the var. Pongo de Cainarachi, *Klug* 2749 (det. Baehni).—Huánuco: Chinchao, *Poeppig* 1409. Cocho, *Poeppig* 1409. Tocache, *Poeppig* 2018.—Río Acre: *Ule* 9875; *Krukoff* 5699, 5610.—Loreto: Santa Rosa, 135 meters, *Killip & Smith* 28990; corolla greenish white; filaments yellow. Balsapuerto, 220 meters, *Klug* 3090. Above Iquitos, *Tessmann* 4544. Balsapuerto, *Klug* 3090 (det. Standley). Middle Río Blanco, *Tessmann* 3023 (det. Harms). Aguayate, *Tessmann* 3158 (det. Harms). Patria, *Tessmann* 4944 (det. Harms). North to Venezuela, West Indies, and Central America.

2. SIOLMATRA Baill.

Reference: Cogniaux, Pflanzenreich IV. 275, pt. 1: 28–31. 1916.

Similar to *Fevillea*, but the ovary imperfectly 3-celled, the 1-celled fruit dehiscent apically, the seeds winged. Sepals of the staminate flowers often only 3.—Probably not distinct from *Zanonia* L., the type of a group of genera needing realignment.

Leaves simple.....*S. simplicifolia*.

Leaves compound.

Leaves 5-foliolate.....*S. pentaphylla*.

Leaves 3-foliolate.

Petioles glabrous, unappendaged.....*S. brasiliensis*.

Petioles auriculate-glandular, appendaged.

Appendages near the apex of the petiole.....*S. peruviana*.

Appendages at or below the middle of the petiole.

S. amazonica.

Siolmatra amazonica Cogn. Pflanzenreich IV. 275, pt. 1: 30. 1916.

Distinguishable from *S. peruviana* chiefly by the lower position of the petiole auricles, wider distribution of the pubescence, the stems and leaf nerves being puberulent and, according to Harms, with 5 sepals, these glabrate, instead of the usual 3.—*Tessmann 3180* with pubescent inflorescence was determined by Harms as "aff." Illustrated, op. cit. 31. Neg. 8960.

Loreto: Mouth of Río Santiago, *Tessmann 4305, 4273* (both det. Harms). On Río Ucayali, *Tessmann 3180*. Leticia, in forest, *Williams 3036*. Puerto Arturo, 200 meters, edge of forest, *Williams 5187*.—San Martín: Juanjuí, 400–800 meters, in clearing, *Klug 4187*; flowers whitish green; also No. *3781*, 400 meters; flowers yellow-green. Brazil. "Tabilla."

Siolmatra brasiliensis (Cogn.) Baill. Bull. Soc. Linn. Paris 1: 458. 1885; 29. *Alsomitra brasiliensis* Cogn. in Mart. Fl. Bras. 6, pt. 4: 115. 1878.

Glabrous or nearly so or, in var. *pubescens* Griseb., the leaves rather densely puberulent beneath; petioles stout, to 10 cm. long, the petiolule of the middle leaflet to 1.5 cm. long, those of the lateral ones 5–6 mm. long; leaflets oblong-ovate, acuminate, to 12 cm. long, 5–7 cm. wide; staminate panicle lax, the peduncle to 20 cm. long, the pedicels 1–4 mm. long; sepals triangular, acute, to 3 mm. long or equaling the slightly bilobed petals; ovary 5–6 mm. long, the style to 1.5 mm. long.—In some parts of its range known as "sacha guasca," and used for fastening roof stringers or beams.

Loreto: Caballo-cocha, in forest, *Williams 2453*. Florida, 200 meters, in forest, *Klug 2033*; a vine with white flowers. Mouth of Río Santiago, *Tessmann 4527* (det. Harms).—Río Acre: Seringal San Francisco, *Ule 9379* (det. Cogn.). Argentina; Brazil; Paraguay.

Siolmatra Mexiae Standl., sp. nov.

Herbacea scandens, caulibus gracilibus striatis densiuscule puberulis vel breviter pilosulis vel glabratibus; folia magna papyracea longipetiolata simplicia, petiolo 5–11 cm. longo eglanduloso gracili pilosulo vel fere glabro; lamina late rotundato-ovata 16–20 cm. longa 14–16.5 cm. lata abrupte breviter acuminata vel interdum fere cuspidato-acuminata, basi profunde (ad 4 cm.) cordata, sinu aperto lato vel angusto, rare in foliis minoribus basi subcordata, lobis posticis late rotundatis, fere integra sed utroque latere dentibus glandulosis 2–3 instructa, supra in sicco viridis vel fuscescens opaca dense pallido-puncticulata, glabra vel sparse minute pilosula, nervis venisque prominulis, subtus concolor sparse praesertim ad nervos

pilosula vel fere glabra, basi 5-nervia, nervis venisque prominulis laxae reticulatis; flores masculi parvi rubescentes vel brunnescentes racemosi, racemis paniculam longam angustam interdum spiciformem pedunculatam usque 30 cm. longam efformantibus dense multifloris, pedicellis inaequalibus usque 6 mm. longis dense viscido-pilosulis vel puberulis, alabastris globosis; calyx ca. 1.5 mm. longus fere ad basin lobatus, lobis ovalibus apice obtusis vel rotundatis extus dense puberulis; corolla 2–2.5 mm. longa subrotata vel late campanulata extus glabra, lobis apice late rotundatis; stamina 5.

Loreto: Above Rancho Indiana, on overflowed bank, left bank of Río Marañón, Distrito de Iquitos, 110 meters, January, 1932, *Ynes Mexia 6406* (type in Herb. Field Mus.). Río Putumayo, on the Colombian border, in forest, *Klug 1652*.—San Martín: Pongo de Cainarachi, 230 meters, in forest, *Klug 2749*.

Close to *S. simplicifolia* Harms, which has much broader panicles and large glands on the petioles.

Siolmatra pentaphylla Harms, Notizbl. Bot. Gart. Berlin 9: 989. 1926.

Glabrous, with 5-foliolate leaves on petioles 6–7 cm. long, these thickened at the tip but lacking glands; leaflets nearly equal, mostly oblongish, narrowed to the short petiolule, acuminate or caudate, entire, papery, to 10 cm. long, 3.5–5 cm. wide; staminate panicle ample, much branched, the rachis 10–30 cm. long; flowers about 3 mm. broad; sepals 2 (or 3?), 2 mm. long, the bilobed or erose petals a third longer; stamens 5, short.—Differs from *S. pedatifolia* Cogn., Pflanzenreich IV. 275, pt. 1: 30, by the lack of petiole appendages or glands and by the entire leaflets on shorter (3–5 mm. long) petiolules, this Cogniaux species of the Amazon region having appendaged petioles, and crenate leaflets on petiolules 8–12 mm. long. A liana 20 meters long with light green flowers, the petals darker at the base (Tessmann). Neg. 8963.

Loreto: Mouth of Río Santiago in flood-free, high woods, *Tessmann 4575*, type.

Siolmatra peruviana (Huber) Cogn. Pflanzenreich IV. 275, pt. 1: 30. 1916. *Alsomitra peruviana* Huber, Bol. Mus. Goeldi 4: 616. 1906.

A vine with slender but deeply sulcate, glabrous stems, trifoliolate, glabrous leaves, and ample, yellowish-puberulent panicles; petioles 3 cm. long, auricled below the apex, the petiolule of the middle leaflet 7 mm., of the lateral leaflets 5 mm. long; leaflets thin,

somewhat crenate above the middle, densely reticulate-veined, the middle one ovate or elliptic, the lateral ones obliquely ovate; pedicels 1 mm. long; calyx tomentulose, the segments triangular, scarious-margined.—*S. pedatifolia* Cogn. of the Amazon region has 5-foliolate leaves, the petioles apically auricled with bilobed glands.

Loreto: Canchahuayo, on Río Ucayali (*Huber 1390*, type; photo. in Herb. Field Mus.).

***Siolmatra simplicifolia* Harms, Notizbl. Bot. Gart. Berlin 11: 769. 1933.**

Stems glabrous or nearly so, striately sulcate; petioles 4–5 cm. long, bearing inflexed auricles at about the middle or a little below the apex; leaves simple, ovate, cuneately narrowed to the margined petiole, apically mucronate or abruptly short-acuminate, sometimes slightly trilobed basally and laterally, 5-nerved, glabrous and somewhat lustrous above, rather densely short-pubescent on the nerves beneath or glabrate, 12–13 cm. long, 9.5–11 cm. broad; panicle ample, much branched, minutely puberulent; pedicels capillary, short; sepals and petals 5, the former broadly ovate, the latter slightly longer and rounded; corolla when spread 3 mm. wide or more; stamen connective very shortly apiculate.—Similar in flowers to *S. amazonica* Cogn. with trifoliolate leaves, a species also with 5 instead of the usual 3 sepals.

Loreto: Yurimaguas, Puerto Arturo, *Williams 5072*, type. Florida, 180 meters, in forest, *Klug 2198*. Balsapuerto, 220 meters, in old clearing, *Klug 2896*; flowers white.—San Martín: Pongo de Cainarachi, 230 meters, in forest, *Klug 2678, 2755*.—Without locality, *Ruiz & Pavón(?)*, as "*Strychnos auriculata*." "Marucha-o" (Huitoto name, fide Klug).

3. **SICYDIUM** Schlecht.

Reference: Cogniaux, *Pflanzenreich* IV. 275, pt. 1: 256–259. 1916.

Herbaceous, dioecious vines, all the flowers paniced, rotate, with 5 sepals and 5 corolla lobes. Stamens 3, free, the filaments often very short, 2 anthers 2-celled, straight. Staminodia of the pistillate flowers often antheriferous. Ovary 1-celled; styles 3. Ovule 1, pendulous, the globose, fleshy fruit indehiscent.

Leaves mostly narrower than 5 cm.; corolla lobes ovate-triangular.

S. gracile.

Leaves mostly broader; corolla lobes narrower.

Leaves more or less densely pubescent; filaments very short.

S. tamnifolium.

Leaves glabrous; filaments longer than the anthers. *S. diffusum*.

Sicydium diffusum Cogn. in Mart. Fl. Bras. 6, pt. 4: 112. 1878; 259.

Apparently glabrous except for the pubescent pedicels and sepals, the branching stems and petioles sulcate, the latter 2–3 cm. long; leaves cordate-ovate, the basal lobes divergent, the rounded sinus to 1.5 cm. deep, 1.5–2 cm. wide, pedately 5-nerved, 6–9 cm. long, 4–6 cm. wide, shortly acuminate; staminate panicle diffuse, the branches widely divaricate, sometimes with small leaves, 20–30 cm. long; sepals subulate, 1 mm. long; corolla lobes lanceolate, to 2 mm. long; filaments 1–1.5 mm. long; anthers (2-celled) 0.3 mm. long.—Neg. 27164. The leaves are most minutely puberulent on both sides, the trichomes scarcely discernible.

Río Acre: Seringal San Francisco and Seringal Auristella, *Ule* 9874, 9874b.—Loreto: Mishuyacu, 100 meters, in forest, *Klug* 1105; flowers yellow-green. San Ramón, 200 meters, in forest, *Williams* 4558. Florida, 200 meters, in forest, *Klug* 1984.—San Martín: Chazuta, 260 meters, in forest, *Klug* 4000; flowers cream and green. Brazil. "Habilla."

Sicydium gracile Cogn. in Mart. Fl. Bras. 6, pt. 4: 113. *pl.* 36. 1878; 257.

Filiform tendrils and very slender branches glabrous; petioles pubescent, to 2 cm. long; leaves ovate, acute, pedately 5-nerved, the basal lobes approximate, the rounded sinus 1–1.5 cm. deep, 5–7 mm. broad, more or less scabrous especially above, 6–8 cm. long, 3.5–5 cm. wide; staminate panicles dense, leafless or the leaves small, 3–7 cm. long, the numerous branches and filiform pedicels pubescent, the pedicels 2 mm. long; sepals triangular-lanceolate, the corolla lobes twice to thrice longer, 1–1.5 mm. long; anthers a third longer than the filaments, these about 0.2 mm. long.—The plant simulates *Dioscorea*. Neg. 9022.

Loreto: Mishuyacu, flowers bright yellow, *Klug* 960 (det. Harms, "aff."). Mouth of Río Santiago, *Tessmann* 4264 (det. Harms). Brazil.

Sicydium tamnifolium (HBK.) Cogn. in DC. Monogr. Phan. 3: 905. 1881; 257. *Fevillea tamnifolia* HBK. Nov. Gen. & Sp. 7: 175. *pl.* 640. 1825.

A slender liana, well marked by its soft pubescence, this nearly tomentose on the leaves beneath; petioles to 5 cm. long; leaves rarely angulate-lobed, pedately 5-7-nerved, about 10 cm. long, 5-8 cm. wide, the basal sinus subrectangular, usually about 1 cm. broad and nearly twice as deep; panicle branches divaricate; corolla and sepals villous, the former greenish white; anthers subsessile; fruit black, pilose, about 5 mm. thick.—Var. *grandifolium* Cogn. of Bolivia has leaves half again larger, the staminate inflorescence to 30 cm. long. Illustrated, *Pflanzenreich*, IV. 275, pt. 1: 258. Neg. 9023.

Loreto: Soledad, *Tessmann 5159* (det. Harms).—Río Acre: *Ule 9871* (det. Cogniaux). Bolivia to West Indies, Mexico, and Venezuela.

4. PTEROPEPON Cogn.

Herbaceous, glabrous or glabrate vines with subdeltoid, entire or 3-cornered or rarely somewhat lobed leaves, the staminate flowers paniculate. Anthers sessile or subsessile. Pistillate flowers geminate. Fruit large, strongly flattened, fibrous, winged, the solitary seed pendulous.

Pteropepon deltoideus Cogn. *Pflanzenreich* IV. 275, pt. 1: 260. 1916. *Fevillea deltoidea* Cogn. in Mart. Fl. Bras. 6, pt. 4: 119. 1878; 260.

Leaves thin, broadly subdeltoid, or the Peruvian plant with some 3-lobed leaves, the outer lobes also slightly lobed, typically 8-13 cm. long, 9-15 cm. wide, always broader than long, about equaled by the panicles of glabrous flowers, their lobes ovate; anthers connate in a ring; fruit not costate, about 7 cm. long and nearly as broad.—On the basis of the presence of some lobed leaves, Harms questions his determination in the absence of fruit. The other known species, *P. monospermus* (Vell.) Cogn., of southern Brazil, has leaves longer than broad, a papillose corolla with narrowly lanceolate lobes, and costate fruits. The Peruvian plant, on geographic grounds, may in any case conveniently be named: *P. deltoideus* var. *peruvianus* Harms, var. nov. Foliis integris, subtrilobatis vel trilobatis, lobis lateralibus plus minusve lobatis. Illustrated, *Pflanzenreich*, IV. 275, pt. 1: 261 (the typical form).

San Martín: Alto Río Huallaga, *Williams 6639* (type of the var., Herb. Field Mus.; det. Harms). Brazil.

5. PSEUDOSICYDIUM Harms

A simple-leaved vine with ample panicles of minute, dioecious flowers. Calyx cupulate-patelliform, 4 of the sepals deltoid, 1 lanceo-

late. Petals 5, subequal. Filaments connate, the 3 anthers borne horizontally at the top of the short column, forming an equilateral triangle.—With the aspect of *Sicydium*, but with the stamen structure of *Cyclantheropsis* Harms of Africa. That genus has only 2 anthers. The only species known is the following.

Pseudosicydium acariaeanthum Harms, Notizbl. Bot. Gart. Berlin 10: 183. 1927.

Glabrous or essentially so except the minutely puberulent, sulcate-striate stems and panicles; petioles 4–5 cm. long; leaf blades ovate or oblong-ovate, slightly cordate or rounded at the base, short-cuspidate at the apex, papery, minutely white-puncticulate, 3–5-nerved from the base, 10–12 cm. long, 4–5 cm. wide; panicle greatly elongate, the rachis at least 20–30 cm. long, with some reduced, oblong leaves at the base; pedicels 1.5–2.5 mm. long; flowers green, to 3 mm. broad. Neg. 9020.

Loreto: Marshy woods, Yarina-cocha, 155 meters, *Tessmann* 5417, type.

6. SICYOS L.

Reference: Cogniaux in DC. Monogr. Phan. 3: 869–899. 1881.

Thin-leaved, annual vines with monoecious flowers, the staminate racemose or subcorymbose, the pistillate often borne with them, clustered at the top of the peduncle or rarely solitary. Sepals and petals exceptionally 4. Filaments connate, the 3 (2–5) anthers sessile at its summit and connate or free, more or less flexuous to nearly straight. Staminodia none.—Otherwise similar to *Sicydium*.

Key based largely on foliage

Leaves 3-lobed, the middle lobe caudate-acuminate; sepals 4.

S. urolobus.

Leaves, if somewhat lobed, not caudate-tipped; sepals 5.

Leaf sinus definitely V-shaped; fruits about 1.5 cm. long.

S. acariaeanthus.

Leaf sinus not at all or not strikingly V-shaped; fruits rarely 1 cm. long.

Leaf sinus more or less angled or rounded; fruits smooth or more or less setose.

Petioles to 1 cm. long; fruits smooth or villous.

Leaf sinus narrow; flowers few; fruits glabrous. . . *S. laevis*.

Leaf sinus open; flowers usually many; fruits villous at first. *S. gracillimus*.

Petioles much longer; fruits more or less setose.

Sepals minute or small.

Staminate racemes simple.

Tendrils simple.....*S. trigeminus*.

Tendrils trifold.

Leaves villous, becoming merely scabrous; staminate racemes and petioles subequal.....*S. Baderoa*.

Leaves short-hirsutulous beneath; staminate racemes about as long as the leaves.....*S. Kunthii*.

Staminate racemes compound.....*S. montanus*.

Sepals 4-5 mm. long.....*S. Weberbaueri*.

Leaf sinus definitely truncate on either side of the petiole; fruits conspicuously setose.

Leaves angled or shortly 3-5-lobed, sparsely puberulent or glabrous.....*S. chaetocephalus*.

Leaves somewhat 5-7-lobed, densely puberulent, finally scabrous.....*S. malvifolius*.

Key based largely on fruits

Fruits smooth, glabrous or tuberculate, not setulose.

Fruits glabrous.....*S. laevis*.

Fruits tuberculate or more or less villous.....*S. Baderoa*.

Fruits more or less setose, or rarely some of them smooth in age.

Setae numerous, the head of fruits thus prickly-setose.

Fruits acute, 8-10 mm. long.....*S. chaetocephalus*.

Fruits obtuse, 6 mm. long.....*S. malvifolius*.

Setae few or scattered.

Fruits with numerous setae (6-15); leaves densely pubescent.

S. Kunthii.

Fruits with usually only 2-8 setae; leaves puberulent beneath or becoming merely scabrous or glabrate.

Sepals 4-4.5 mm. long.....*S. Weberbaueri*.

Sepals minute.

Leaves with a V-shaped basal sinus; fruits 1.5 cm. long.

S. acariaeanthus.

Leaves cordate; fruits to 1 cm. long or rarely longer.

Leaves 3-lobed, the middle lobe long-caudate *S. urolobus*.

Leaves, if at all lobed, not caudate-tipped.

Staminate racemes short, about as long as the petioles.
S. Baderoa.

Staminate racemes elongate, often about as long as the leaves.

Staminate racemes compound.....*S. montanus.*

Staminate racemes simple.....*S. trigeminus.*

Sicyos acariaeanthus Harms, Repert. Sp. Nov. 19: 172. 1923.

Glabrous or nearly so except the subsetulose petioles 0.5–3 cm. long, the puberulent leaves, especially beneath, and the sparsely puberulent fruits; leaves suborbicular, V-cordate at the base, angulately 3–5-lobed or shortly 3-lobed, denticulate or subentire, 3–8 cm. broad; tendrils trifid; staminate peduncles many-flowered above, 2–7 cm. long, the capillary pedicels 4–7 mm. long; flowers white, 1.5 mm. broad, the sepals setaceous, the deltoid or lanceovate petals lightly papillose within; anther cells suberect; pistillate peduncle 2–4 cm. long, bearing apically 2–3 (or 1) flowers; fruit rostrate, to 1.5 cm. long, with 4–8 or more setae.—The name refers to the presence of perfect flowers; in this character as well as in its more numerous pistillate flowers and setae on the fruit the species differs from *S. fusiformis* Cogn., of southern Brazil. Neg. 9056.

Piura: In evergreen bush below Frías, Prov. Ayavaca, 1,300 meters, *Weberbauer 6420*, type.

Sicyos Baderoa Hook. & Arn. in Hook. Bot. Misc. 3: 324. 1833; 884. *S. bryoniaefolius* Moris, Mem. Accad. Torino 37: 106. *pl.* 6. 1834.

Sparsely villous-hirsute, including the corolla, the angulate stems glabrous except at the nodes; petioles 2–10 cm. long; leaf blades deeply cordate, angled or slightly 3–5-lobed, entire or minutely denticulate, finally merely scabrous beneath, mostly 5–10 cm. long and broad or larger; tendrils trifid; staminate racemes 3–5 cm. long, the 3–8 flowers capitately crowded, on pedicels 1–3 mm. long; calyx tube to 3 mm. broad; corolla lobes papillose and with a few long hairs, about 2 mm. broad; pistillate peduncles filiform, usually less than 1 cm. long, fruit ovoid, acute, sparsely villous and aculeate, becoming glabrous and tuberculate, 6 mm. long.—Harms has given publication of the name of Moris as by Cogniaux, *op. cit.*, but it was mentioned by Moris in a seed list in 1831 and effectively published by him in 1834. Apparently his name, virtually a her-

barium name of Bertero, is antedated by that of Hooker and Arnott, op. cit., not 234 as given by Cogniaux. The flowers are greenish white (Weberbauer). The seeds are employed as a popular purgative in native medicine, and the plants are burned for the ash used as fertilizer in agriculture (Herrera).

Lima: Chicla, 3,720 meters, *Weberbauer* 257; 169 (det. Cogniaux); *Ball.* Near Lima, *Wawra* 2539; *Isern* 2517. Río Blanco, 3,000–3,500 meters, *Killip & Smith* 21592. Callao, *Gaudichaud*; (*Gay*).—Cajamarca: Casas, *Raimondi* (det. Harms).—Ancash: *Raimondi* (det. Harms).—Arequipa: Posco and Cachendo (*Guenther & Buchtien* 61, 61a; det. Bruns). Atequipa, *Raimondi* (det. Harms).—Moquehua: Torata, *Weberbauer* 7392. Carumas, *Weberbauer* 7350.—Cuzco: *Herrera* 217 (det. Harms). Chile; Ecuador. "Barredera."

Sicyos chaetocephalus Harms, Repert. Sp. Nov. 19: 172. 1923.

Sulcate-striate stems and elongate petioles more or less long-pilose, the latter to 6 cm. long or longer; leaves broadly cordate, shortly 3–5-lobed or angulately lobed, obscurely denticulate, sparsely puberulent or subglabrous, 9–15 cm. broad; tendrils 3–5-parted; staminate peduncles 5–9 cm. long, short-pilose or puberulent, many-flowered, the slender pedicels puberulent, 9–13 mm. long; flowers 6–7 mm. broad, greenish, both receptacle and corolla puberulent, the deltoid lobes of the latter to 2.5 mm. long; pistillate peduncle in each axil with the staminate, to 1.5 cm. long, the somewhat setulose flowers densely capitate, the fruiting head (with setae) 3–4 cm. thick; fruits subsessile, acute, short-setulose, 8–10 mm. long.—Separated by the author from *S. longisetosus* Cogn. op. cit. 882, from Guayaquil, with shortly and densely villous leaves and 60–80-flowered pistillate heads that in fruit become 4–6 cm. thick, the setae 12–16 mm. long.

Piura: Between Chulucanas and Morropón, 150 meters, in algarrobo hedge, *Weberbauer* 5971, type.

Sicyos gracillimus Cogn. in DC. Monogr. Phan. 3: 886. 1881.

A delicate vine with nearly glabrous, entire, slightly angled leaves; petioles 4–8 mm. long, more or less villous like the simple staminate racemes, these filiform, 5–7 cm. long, to about 25-flowered, the spreading pedicels 1–2 mm. long; calyx glabrous, 2–2.5 mm. broad; corolla greenish or white (Weberbauer), sparsely glandular, to 1.5 mm. broad; stamen column slender, the anthers capitate; pistillate peduncle 1 cm. long; fruit at first villous, becoming glabrate, subacute, 4 mm. long, 2.5 mm. thick.—The leaves may be obscurely

denticulate, sparsely hispidulous beneath, and rarely as large as 5 cm. wide and long. Neg. 31068.

Lima: Mt. Amancaes, on stony ground, *Weberbauer 1590* (det. Cogniaux); 143; 145; *Wawra 2640*, type. Hills of Lima, *Isern 2514*. Chancai, *Ruiz & Pavón*. San Gerónimo, 150 meters, 5916; flowers white. Matucana, 2,400 meters, along stream, 395.—Huánuco: Cochero, *Ruiz & Pavón*.

Sicyos Kunthii Cogn. in DC. Monogr. Phan. 3: 888. 1881. *S. parviflorus* HBK. Nov. Gen. & Sp. 2: 119. 1817, non Willd.

More or less pubescent or villous, especially the sulcate stems at the nodes; petioles to about 10 cm. long; leaves broadly ovate, acute or acuminate, the rather narrow sinus of the cordate base 1–2 cm. deep, the blade as long as the petiole, sometimes broader than long, sparsely hirsute-puberulent above, densely so or villous beneath; tendrils 2–3-parted; staminate peduncles 10–25 cm. long, 20–30-flowered, the subverticillate, spreading, filiform pedicels 7–12 mm. long; calyx tube villous only within, to 3 mm. broad; corolla to 2 mm. broad, the lobes sparsely papillose; pistillate peduncle in fruit to 4 cm. long; fruit black-spotted, acute, 8 mm. long, half as broad, long-villous with as many as 15 rigid setae 3–4 mm. long.—Flowers yellowish green. *S. subcorymbosus* Cogn. of Bolivia, similar, has greenish, subcorymbose flowers, leaves glabrous above but white-punctate, tendrils 3–4-fid, and fruit either bearing 3–6 rigid setae near the base or smooth. The type of *S. Kunthii*, from Chillo near Quito, has been credited by Cogniaux to Peru.

Lima: Near Lima (*Nation 180*). Ecuador.

Sicyos laevis Gray, Bot. U. S. Expl. Exp. 1: 648. 1854.

Glabrous except the young leaves, these short-villous on both sides, ovate, deeply cordate, cuspidate-acuminate, angulately dentate or slightly 5-lobed, denticulate, in age sparsely rugulose and short-papillose, 5–6 cm. long; tendrils trifid; petioles 5–7 mm. long; pistillate peduncle scarcely equaling the leaves, the few flowers 4 mm. broad, with filiform stamen column; pistillate peduncle 4–5 mm. long; fruit acute, 5–7 mm. long (immature).—*S. subcorymbosus* might be sought here; cf. under *S. Kunthii*.

Lima: Obrajillo (*Wilkes Exped.*, type).

Sicyos malvifolius Griseb. Abh. Ges. Wiss. Goett. 19: 147. 1874; 24: 136. 1879.

In many respects similar to *S. chaetocephalus*; leaves slightly 5–7-lobed, at first shortly and densely villous on both sides, finally

scabrous; staminate peduncles 10–18 cm. long, the pedicels glandular-puberulent, 3–8 mm. long; calyx and corolla sparsely long-pilose; fruits rugulose-tuberculate, 6 mm. long, the fragile setae 2–3 mm. long. Neg. 9061.

Peru: Without locality (*Gay*).—Huánuco: Ambo, 2,100 meters, 3151. Bolivia; Argentina.

Sicyos montanus Poepp. & Endl. Nov. Gen. & Sp. 2: 53. *pl.* 172. 1838; 889.

Stems prostrate or climbing over shrubs, villous-puberulent like the elongate petioles, 3–4-fid tendrils, leaves above, and peduncles; leaves broadly ovate, deeply cordate at the base with a narrow sinus to 3 cm. deep, short-acuminate, 5-angled or shallowly lobed, nearly tomentulose-pubescent beneath, minutely and remotely denticulate, 10–15 cm. broad and long; staminate peduncles to 20 cm. long, usually with 3–4 divaricate branches; pedicels filiform, about 1 cm. long; calyx narrowly campanulate, the tube glabrous or sparsely pilose, 2.5 mm. long, 2 mm. broad; fruit shortly tomentose, with 4–5 rigid setae.—Similar to *S. Kunthii*, which has a broadly campanulate calyx, the staminate racemes usually simple. Here might be sought *S. palmatilobus* Cogn. of Guayaquil; it has deeply 5-lobed leaves and pistillate flowers geminate on an elongate peduncle, the fruit to 2 cm. long, asperous with appressed setae. Also *S. aculeatus* Fries, Ark. Bot. 6, No. 11: 5. *pl.* 2. 1907, of Bolivia, with calyx 1 mm. long, 3 mm. wide, and fruit with 6–9 rigid bristles. Neg. 9062.

Huánuco: Chinchao, *Poeppig* 1698, type.

Sicyos trigeminus Rusby, Mem. Torrey Club 3, No. 3: 38. 1893.

Much like *S. Kunthii*, but with simple tendrils, shorter, hispidulous petioles, narrowly acuminate leaves with a broad, rounded sinus, minutely hispid beneath, sparsely so with longer trichomes above; flowers in distinct whorls of 3; fruits 3-capitate, when young villous with a few yellowish prickles from obscure tubercles, abruptly acuminate, 4 mm. long or longer.—“Very near *S. subcorymbosus*” (Cogn. in herb. Dahlem); cf. note under *S. Kunthii*. Name written by its author “*trigemina*.”

Piura: Right valley of Río Quiroz, Prov. Ayavaca, 1,200 meters, *Weberbauer* 6385 (det. Harms). Bolivia.

Sicyos urolobus Harms, Notizbl. Bot. Gart. Berlin 11: 775. 1933.

Scandent, the tendrils 3–4-parted; stems and leaves above more or less pilose; petioles villous-hirsute, 4–6 cm. long; leaf blades

ovate to suborbicular, obviously cordate, 3-lobed above the middle, the lateral lobes strongly oblique and curved, often with a basal lobule, the middle lobe caudate, with an acumen 2-3 cm. long, mucronulate-denticulate, densely or velvety puberulent beneath, 8-15 cm. long; staminate peduncle 5-12 cm. long, becoming densely hirsutulous toward the hirsute, often fasciculate pedicels, these 10-17 mm. long; flowers greenish, sparsely puberulent, all the parts in 4's; sepals finely filiform, 2-2.5 mm. long; corolla papillose within, with a spread of 5-6 mm.; pistillate peduncle 3-5 cm. long; fruits bearing 2-4 setae.—The author compares this species, to which the younger leaves by their exceptional points give a unique appearance, to several others, notably *S. Kunthii* Cogn. and *S. montanus* P. & E., both with different leaves; also to *S. subcorymbosus* Cogn. and *S. aculeatus* Fries, Ark. Bot. 6, No. 11: 5, both of Bolivia and both, too, with different leaves, the latter in addition with branched instead of simple racemes. Apparently also allied and possibly occurring in Peru is *S. Andreanus* Cogn., with punctate, asperous leaves 5-lobed nearly to the base, the lance-linear lobes long-acuminate; fruits with several short, reflexed, uncinat prickles.

Ayacucho: Choimacota Valley, 2,600 meters, open places in woods, *Weberbauer* 7564, type.—Huánuco: Huacachi, 1,950 meters, 4190; flowers green.

Sicyos Weberbaueri Harms, Repert. Sp. Nov. 19: 173. 1923.

Stems, peduncles, and petioles more or less pilose, the last sometimes 12 cm. long; leaves deeply cordate, very shortly 3-5-angulate-lobed, 7-13 cm. broad or larger, sparsely and minutely puberulent above, densely so beneath; tendrils 4(-5?)-parted; staminate peduncles 10 cm. long or longer, the many slender pedicels 10-12 mm. long or the apical ones greatly reduced; receptacle glabrous, nearly 4-5 mm. broad; sepals lanceolate, acute, the margins sparsely hirsute-fimbriate, 4-4.5 mm. long, slightly exceeding the broader corolla lobes; pistillate peduncles 1-3.5 cm. long, the capitate subsessile flowers many; ovary glabrous, the young fruit showing 4-6 setae 4-6 mm. long.—Allied to *S. longisepalus* Cogn. of Guatemala, with 5-lobed leaves. Neg. 9065.

Lambayeque: Above Olmos, in river brush, 500 meters, *Weberbauer* 7094, type.

7. ANGURIA L.

Gurania (Schlecht.) Cogn. Bull. Soc. Bot. Belg. 14: 239. 1875.
Guraniopsis Cogn. Bot. Jahrb. 42: 173. 1908.

Reference: Cogniaux, Pflanzenreich IV. 275, pt. 1: 178-230. 1916.

Lianas or herbaceous, perennial vines with simple or bifid tendrils, entire, lobed, or 3-5-foliolate leaves, and small or conspicuous flowers, these usually dioecious, the staminate variously borne, most often racemously, toward the summit of a long peduncle. Calyx tube elongate, green, half green, or colored, the sepals, as in other genera, developed to greater or less degree. Corolla about rotate, the more or less spreading and broad petals longer than the sepals (Sect. *Euanguria* Schlecht.) or rarely subequal, or erect or suberect, relatively narrow, and much shorter than the sepals (Sect. *Gurania* Schlecht.). Stamens 2, sessile, dorsifixed, free or coherent. Anther cells straight, curved or replicate below, the connective often produced. Pistillate flowers solitary or few. Staminodia none or 2. Ovules many, horizontal.—See also the segregate *Dieudonnaea*. To avoid awkwardness in making new combinations in incidental references, some species are listed as *G.* (*Gurania*).

It seems obvious that the division of *Anguria* into three genera is arbitrary. Recently described species show further the relative development of the characters. It is interesting to note the variation in anther cells within this natural genus, a variation accepted by Cogniaux himself. For simplicity the receptacle has been termed here the calyx tube, following many writers. Generally colored in the section *Gurania*, at least one species therein has the calyx tube green in the lower half.

Leaves trifoliolate; rarely 5-foliolate (in *A. bignoniacea* exceptionally unifoliolate).

Petals distinctly longer than the sepals.

Leaflets cuneate at the base; petals 1.5-2 cm. long.

A. bignoniacea.

Leaflets more or less rounded at the base; petals 3-4.5 cm. long.

A. grandiflora.

Petals shorter than the sepals or only 1-2 mm. longer.

Calyx viscid-pilose.....*A. Tessmannii*.

Calyx glabrous or lightly pubescent, at least not viscid-pilose.

Sepals spreading, 2-2.5 mm. long; leaves glabrous; anther appendage filiform, papillose.....*A. Balfoureana*.

Sepals erect, often 3-4 mm. long; anther appendage not filiform.

Leaflets lightly pubescent, at least beneath; anther appendage faintly to densely papillose.

Leaflets long-pilose on the upper surface.....*G. Smithii*.

Leaflets glabrous or short-villous on the upper surface.

Anthers 5 mm. long, the appendage scarcely papillose;
sepals 3-4 mm. long.....*A. ucayalina*.

Anthers 4 mm. long, the appendage papillose; sepals
 2.5-3 mm. long.....*A. cissooides*.

Leaflets glabrous, as also the anther appendage; sepals
2 mm. long.....*A. inaequalis*.

Leaves more or less lobed, sometimes deeply, or entire.

A. Sepals narrow, 6–28 mm. long.

Leaves entire or repand-lobed (cf. also *A. Guentherii*).

Leaves caudate-acuminate; petioles 3–6 cm. long.

A. pyrrocephala.

Leaves short-acuminate; petioles 1-2 cm. long. *A. speciosa*.

Leaves more or less deeply lobed, at least some of them.

Leaves all 5-7-lobed; plant abundantly lanate...*A. lanata*.

Leaves more or less deeply 3(-5)-lobed.

Sepals 14–27 mm. long.

Leaves 3-lobed, the lateral lobes often spreading; sepals not densely long-pilose.

Sepals 17-27 mm. long; petioles 1-2.5 cm. long.

A. pycnocephala.

Sepals 14–17 mm. long; petioles 5–9 cm. long.

Calyx tube 12–13 mm. long.....*A. insolita*.

Calyx tube about 5 mm. long.....*A. pachypoda*.

Leaves 3-5-lobed, the lateral lobes often not spreading;
sepals densely long-pilose.....*A. eriantha*.

Sepals 6-10 (-13) mm. long.

Sepals much longer than or subequaling the pedicels and petals.

Stems densely reddish-pilose; anthers straight, 4 mm. long, 1 mm. wide, the connective narrow.

A. rufipila.

Stems not densely pilose; anthers replicate (unless in *A. pachypoda*?), longer.

Calyx tube narrow, about cylindric, subequaling or longer than the sepals.

Calyx tube to 2 cm. long; anthers 12 mm. long.

A. spinulosa.

Calyx tube to 1 cm. long; anthers 5–6 mm. long.

A. Weberbaueri.

Calyx tube subglobose or ovoid, exceeded by the often ligulate sepals.

Inflorescence sessile or nearly so . . . *G. apodantha.*

Inflorescence long-pedunculate.

Pedicels 3–4 mm. long, thickish; calyx tube puberulent *A. pachypoda.*

Pedicels 3–10 mm. long, slender; calyx tube villous *A. Ulei.*

Sepals much shorter than the pedicels, subequaling the petals.

Sepals subulate *A. longipedicellata.*

Sepals linear-oblong *G. Killipii.*

A. Sepals 2–4 (–5) mm. long.

Leaves not at all or very indistinctly cordate.

Leaves pubescent on both sides *A. Mathewsii.*

Leaves glabrous or essentially so.

Sepals 2–3 mm. long *A. Boissieriana.*

Sepals 4–5 mm. long *A. Guentherii.*

Leaves distinctly cordate.

Sepals 3 mm. long; pedicels obsolete *A. capitata.*

Sepals 5 mm. long; pedicels well developed . . . *A. pachypoda.*

***Gurania apodantha* Standley, sp. nov.**

Herbacea scandens, caule gracili sulcato subsparse breviter piloso, internodiis elongatis; folia breviuscule petiolata coriaceo-membranacea, petiolo crasso ca. 4 cm. longo; lamina 13–15 cm. longa et aequilata profunde triloba, basi subcordata et brevissime decurrens, supra ad nervos dense breviter hispidulo-pilosa, aliter glabra vel glabrata et dense albido-papillosa, subtus fere concolor sparse breviter patenti-pilosa, basi trinervia, venis subtus prominulis laxae reticulatis; inflorescentia mascula (1 tantum visa) sessilis, densa, floribus numerosissimis breviter racemosis, pedicellis gracilibus sed in statu sicco non conspicuis ad 14 mm. longis pilis longis gracillimis villosis; calyx ca. 15 mm. longus extus subdense pilis longissimis albidis patentibus vestitus, tubo hemispherico 8 mm. lato et ultra,

lobis fere 1 cm. longis lanceolato-linearibus apicem angustum versus sensim attenuatis.

Loreto: Iquitos, 100 meters, in forest, August, 1929, *Killip & Smith 27451* (type in U. S. Nat. Herb.; photo. in Herb. Field Mus.).

Calyx bright orange. Easily recognizable by the sessile inflorescence, providing this is not abnormal in the type material. This species, like two others described here as new, I have preferred to leave in the genus *Gurania*, rather than refer them to *Anguria*.

Anguria Balfoureana (Cogn.) Macbr., comb. nov. *Gurania Balfoureana* Cogn. in DC. Monogr. Phan. 3: 714. 1881; 227.

Slender-stemmed, the puberulent petioles of the trifoliolate leaves 2 cm. long, the petiolules of the oblong-lanceolate, acuminate leaflets 5–10 mm. long; leaflets glabrous, remotely spinulose-denticulate, subequal, auricled at the attenuate base, 3–4 cm. wide, 8–10 cm. long; tendrils short, glabrous; staminate peduncle pilose, 12–15 cm. long, the puberulent, crowded pedicels 3–6 mm. long; calyx tube oblong, sparsely puberulent, 7–8 mm. long, 3–4 mm. broad, the spreading, triangular sepals 2–2.5 mm. long; petals oblong, obtuse, 3–4 mm. long, papillose like the filiform appendages of the basally replicate anthers, these 6 mm. long.—*A. pallida* Cogn. might be sought here; see under *A. inaequalis*.

Peru: Without locality (*Mathews 2043*, type).

Anguria bignoniacea Poepp. & Endl. Nov. Gen. & Sp. 2: 53. 1838; 184. *A. triphylla* Miq. Linnaea 19: 136. 1847.

Glabrous, dioecious, the leaves all or most of them trifoliolate or very rarely all unifoliolate; spikes eventually many-flowered, the elongating rachis conspicuously scarred by the fallen calyces, the scars as much as 2 mm. wide; petioles to 2.5 cm. long, the petiolules about 1 cm. long; leaflets oblong-lanceolate, attenuate at the base, short-acuminate, at least 10 cm. long, 4–6 cm. long, 4–6 cm. wide; calyces rarely pedicellate, 10-striate, 8–10 mm. long, 2–3 mm. wide, the spreading, ovate sepals 2 mm. long, the broadly obovate, reddish petals 1.5–2 cm. long; anthers straight, with slightly papillose appendages; pistillate flowers solitary, the peduncle 1–2 cm. long or twice as long in fruit; fruit ovoid, 3–4 cm. long, 2–2.5 cm. thick.—In the type the nodes and the calyces are somewhat pulverulent; there are many pustules on the leaves. Var. **pallida** (Cogn.) Macbr., comb. nov. (*A. triphylla* Miq. var. *pallida* Cogn. in DC. Monogr. Phan. 3: 670. 1881, *Mathews 2041*, without locality in Peru), differs from the type in having the leaves pale on both sides; there is

another variety in Ecuador with long-acuminate leaves. Neg. 31062. Illustrated, Mart. Fl. Bras. 6, pt. 4: *pl.* 10.

Huánuco: Cochero, *Poeppig* 1703, type.—Junín: La Merced, 600 meters, on trees along river, 5383. Chanchamayo, *Isern* 2366. —Loreto: Iquitos, *Tessmann* 5066 (det. Harms). Soledad, *Tessmann* 5246 (det. Harms). Mishuyacu, 100 meters, in forest, *Klug* 542; flowers red.—San Martín: San Roque, 1,400 meters, in forest, *Williams* 6946, 7370.—Río Acre: Cobija, *Ule* 9870 (det. Cogniaux; leaves partly unifoliolate). Seringal Auristella, *Ule* 108b (leaflets all unifoliolate). Bolivia; Venezuela; Guianas. "Ampato huasca," "sacha-vaca-quina."

Anguria Boissieriana Cogn. in DC. Monogr. Phan. 3: 673. 1881; 187.

Glabrous except the puberulent petioles (2 cm. long), peduncles (25 cm. long), and sepals, these suberect, sparsely pilose, 2 mm. long; leaves deeply 3-lobed, scarcely if at all cordate at the base, entire or nearly so, to 12 cm. long and 15 cm. broad, the lobes divaricate, triangular, acute; tendrils slender; flowers sessile, crowded, the calyx tube subrotund at the base, 7–8 mm. long, 2–3 mm. thick; petals obovate, densely papillose on both surfaces, 4–5 mm. long; anthers straight, about 5 mm. long, the narrow appendage scarcely papillose.

Peru: Masova, *Ruiz & Pavón*, type.

Anguria capitata Poepp. & Endl. Nov. Gen. & Sp. 2: 52. 1838; 225. *Gurania capitata* Cogn. Diag. Cucurb. 1: 18. 1876.

Very near *A. Guentheri*, differing principally in the subsessile flowers, the thick pedicels only 0.5–1 mm. long, and in the oblongish calyx tube, this 7–9 mm. long, 3–4 mm. broad, the sepals 3 mm. long; petals only 2 mm. long.—Var. **pallida** (Cogn.) Macbr., comb. nov. (*G. capitata* var. *pallida* Cogn. in DC. Monogr. Phan. 3: 711. 1881), has subentire leaves, ashy-colored beneath. The leaf lobes of the typical form are abruptly caudate. *A. magdalenae* Pittier, 182, found as near as Ecuador, has deeply cordate leaves, the lateral lobes auricled, and sepals only 1 mm. long. *A. umbrosa* HBK., 190, ranging from Brazil to Surinam and Mexico, might key here but has deeply 5–7-lobed leaves. Neg. 8990, the var.; Neg. 31061, the type.

Huánuco: Pampayacu, *Poeppig* 1222, type.—Without locality, *Ruiz & Pavón*.—Junín: Chanchamayo, *Raimondi* (det. Harms); *Isern* 2104. La Merced, 700 meters, *Killip & Smith* 23714; flowers

bright orange-red; on brush along river, 5382. Schunke Hacienda above San Ramón, 1,300–1,700 meters, *Schunke* A12. Chanchamayo Valley, 1,200 meters, *Schunke* 359.

Anguria cissoides Benth. in Hook. Journ. Bot. 2: 242. 1850; 228. *Gurania cissoides* Cogn. Diag. Cucurb. 1: 16. 1876.

High climbing, the green parts more or less villous, finally glabrous or essentially so except the lightly pubescent pedicels, these apically congested, 6–16 mm. long, the common peduncle (staminate) to 25 cm. long; petioles 2–3 cm. long, at first densely villous, becoming glabrate; leaflets 3, on petiolules 5–15 mm. long, acute or short-acuminate, papillose or sparsely pubescent above, sparsely and obscurely hispid beneath on the nerves, the terminal one attenuate at the base, 9–18 cm. long, 4–7 cm. wide, the slightly smaller lateral ones broadened and auriculate at the outer edges; pedicels 6–16 mm. long; calyx tube strigose-puberulent, the hairs subappressed, ovoid-oblong, rounded at the base, 5–6 mm. long, 2–3 mm. thick; sepals erect, to 3 mm. long; petals linear, papillose, 1.5–2 mm. long; anthers replicate basally, 4 mm. long, the narrow, villous connective with a papillose appendage 1 mm. long.—*A. parviflora* Cogn., 190, of Ecuador has 5-foliolate leaves, subulate sepals 1.5 mm. long, and narrowly ovate petals to 2.5 mm. long. *G. variabilis* Cogn., 217, of Bolivia is nearly *A. inaequalis* (Cogn.) Macbr., but the sparsely pilose, long-acuminate leaflets are subsessile. *G. brachyodonta* Donn. Sm., 227, of Ecuador has spreading sepals as in the related *A. Balfoureana* (Cogn.) Macbr., from which it differs by its glabrous peduncles shorter than the leaves.

Huánuco: Pampayacu, *Poeppig* 1703, in part. Brazil and Guianas.

Anguria eriantha Poepp. & Endl. Nov. Gen. & Sp. 2: 52. pl. 169. 1838; 200. *Gurania eriantha* Cogn. Diag. Cucurb. 1: 16. 1876.

Stems, petioles, leaf nerves, and calyces conspicuously pubescent with spreading, white-lustrous, setose-pilose trichomes, the longer hairs 5–7 mm. long; petioles 2–4 cm. long; leaf blades thin, suborbicular, 8–15 cm. long and broad, entire or usually more or less 3-lobed, deeply cordate at the base; staminate flowers capitate-spicate, the sparsely hirsute peduncles to 60 cm. long; calyx tube rounded at the base, 6–8 mm. long, 4 mm. thick, the flexuous, suberect sepals subulate and twice as long; petals densely papillose on both surfaces, about 1 cm. long; anthers straight, 2.5–3 mm. long, the connective broad, muticous.—*G. Andreana* Cogn., 201, similar, of Ecuador, has

sepals 5-6 times longer than tube. Illustrated, *Pflanzenreich* IV. 275, pt. 1: 201, scarcely typical. Neg. 8993.

Junín: Huacapistana, 1,600 meters, *Weberbauer* 2330; 252. Chanchamayo Valley, 1,200 meters, *Schunke* 1733.—Cuzco: Valle de Lares, *Herrera* 1803 (det. Harms). Marcapata Valley, 1,750 meters, *Weberbauer* 7847; calyx fiery red, corolla yellow. Santa Ana, 1,250 meters, *Herrera* 961.—Loreto: Yurimaguas, *Poeppig*, type. Leticia, in forest, *Williams* 3164. Iquitos, 120 meters, *Williams* 8037. Florida, 180 meters, riverside forest, *Klug* 2267; flowers red.—San Martín: San Roque, 1,400 meters, in forest, *Williams* 7097. Juanjuí, 400-800 meters, in clearing, *Klug* 4340. "Usiya-o" (Huitoto name).

Anguria grandiflora Cogn. Diag. Cucurb. 1: 22. 1876; 183.

Closely allied to *A. bignoniacea*, but the lateral leaflets each with a very pronounced bulge on the outer edge; petioles to 5 cm. long; leaflets 5-10 cm. wide; calyx tube 10-15 mm. long, the sepals 4-6 mm. long; petals 3-4.5 cm. long, 12-20 mm. wide.—Both Tessmann collections were determined by Harms as "aff."; in this material the petals are only 8 mm. wide, extending 1-1.5 cm. beyond the calyx, this 1 cm. long. Illustrated, as *A. gloriosa* S. Moore, Trans. Linn. Soc. II. Bot. 4: pl. 25. Neg. 31065.

San Martín: Tarapoto, *Ule* 6550; *Williams* 6514.—Loreto: Yurimaguas, *Poeppig* 2415, type. Yarina-cocha, *Tessmann* 3379. San Isidro, *Tessmann* 4791. Manfina, *Williams* 1167. Mishuyacu, 100 meters, in forest, *Klug* 105; flowers red. Bolivia; Paraguay. "Mashu-huario."

Anguria Guentheri (Harms) Macbr., comb. nov. *Gurania Guentheri* Harms, Notizbl. Bot. Gart. Berlin 9: 990. 1926.

Glabrous or essentially so except for the short (always?) inflorescences, these densely appressed-villous with brown hairs; leaves entire or 3-lobed, the former oblong-ovate, rounded at the base, acuminate, the latter lobed at least to the middle, the acuminate lobes ovate or oblong, all 3-nerved from the base, chartaceous or papery, remotely and minutely denticulate, 12-17 cm. long, 7-14 cm. wide; lateral peduncles geminate, 0.5-2 cm. long, the many flowers apically sub-umbellate on pedicels about 5 mm. long; calyx broadly urceolate, 3-3.5 mm. broad; sepals somewhat spreading, narrowly ovate, glabrous within or nearly so, 4-5 mm. long; petals 2.5 mm. long; anthers 2, flexuous, basally replicate, the connective appendage short, acute, glabrous or nearly so.—Differs from *A. capitata* Poepp. & Endl. in

its peduncled inflorescences and larger calyces; although only short lateral racemes are present in the material cited, Harms suggests that the species, like many others, may develop also long-peduncled racemes. He refers with some doubt to the last two numbers cited, this being pistillate material. A slender liana with red or fiery red calyx, the petals orange (Tessmann). In flooded or flood-free woods. Neg. 8994.

Loreto: Mouth of Río Santiago, *Tessmann 4113*, type; *4538*. Mouth of Río Apaga, *Tessmann 3845*. Pongo de Manseriche, in forest, 150 meters, *Killip & Smith 29139*; corolla red.

Anguria inaequalis (Cogn.) Macbr., comb. nov. *Gurania inaequalis* Cogn. Diag. Cucurb. 1: 32. 1876; 217.

Stems slender, sulcate, with a few long, white hairs; petioles pubescent, 4–25 cm. long; leaves trifoliate, the lateral petiolules 1.5 cm. long, the middle one 2–2.5 cm. long; leaflets obtuse or short-acuminate, minutely denticulate, glabrous, the middle one acute at the base, about 20 cm. long and half as wide, the lateral ones strongly asymmetric and semicordate, 8–11 cm. wide; flowers 40–50, capitate-racemose, glabrous or nearly so, the slender peduncle 20 cm. long or longer, the pedicels 3–5 mm. long; calyx tube red, oblong, slightly attenuate at the base, 4–5 mm. long, slightly pubescent; sepals erect, triangular-lanceolate, 2 mm. long, the slightly papillose, yellow petals 1–1.5 mm. long; anthers replicate at the base, 3–3.5 mm. long, the connective extremely narrow, the appendage glabrous. —*A. pallida* Cogn., 182, of Ecuador, has leaflets scarcely asymmetric and fewer spicate flowers with a greenish calyx tube 10 mm. long. Neg. 8998.

Loreto: Leticia, *Ule 6185*.—Huánuco: Posuso, 600 meters, on sunny brush, *4627* (det. Harms). Brazil.

Anguria insolita (Cogn.) Macbr., comb. nov. *Gurania insolita* Cogn. Pflanzenreich IV. 275, pt. 1: 209. 1916.

Shortly villous-puberulent nearly throughout; stems and petioles stout, the latter 5–6 cm. long; leaf blades 15–18 cm. long, 16–20 cm. wide, deeply 3-lobed, the lobes abruptly acuminate, entire or nearly so, the lateral lobes with a spreading basal lobe or point, the resulting sinus as much as 4 cm. broad; flowers numerous, horizontally spreading in head-like racemes on peduncles 10 cm. long and 7–8 mm. thick above; pedicels 2–3 mm. long; calyx tube rather long-villous, 12–13 mm. long, 4 mm. broad, the red, scarcely flexuous, linear-acuminate sepals glabrous within, sparsely pilose without,

15–17 mm. long, the finely papillose, nearly linear petals a third as long; anthers straight, 9 mm. long, the appendage smooth.—Illustrated, op. cit. 210.

Río Acre: Seringal San Francisco, *Ule* 9878, type.

Gurania Killipii Standley, sp. nov.

Scandens herbacea, caule crassiusculo striato subdense puberulo et sparsius villosu-hirsuto, internodiis elongatis; folia majuscula petiolata coriaceo-membranacea, petiolo crasso ca. 4.5 cm. longo densissime pilis sordidis villosu-hirsuto; lamina ca. 18 cm. longa atque aequilata fere ad basin 5-loba, basi cordata et breviter decurrens, supra subdense hispidula tactu aspera, subtus ubique hispidula et papillosa, lobis irregulariter sinuatis et repando-dentatis, oblongis vel elliptico-oblongis acutis; inflorescentia mascula umbellata laxa multiflora, pedunculo crasso ca. 23 cm. longo villosulo-puberulo; pedicelli graciles 1.5–3.5 cm. longi minute puberuli inaequales; calyx extus minute scaberulo-puberulus, tubo angusto 1.5 cm. longo 3–5 mm. crasso, sepalis lineari-oblongis 8–10 mm. longis acutis suberectis, petalis anguste oblongis fere aequilongis; antherae replicatae lineares, connectivo angusto, appendice parvo glabro.

Loreto: Santa Rosa, lower Río Huallaga, below Yurimaguas, 135 meters, in forest, September, 1929, *Killip & Smith* 28907 (type in U. S. Nat. Herb.; photo. in Herb. Field Mus.).

Anguria lanata (Cogn.) Macbr., comb. nov. *Gurania lanata* Cogn. Diag. Cucurb. 1: 26. 1876; 199.

Stems hirsute, the hairs long; petioles to 5 cm. long, densely long-lanate-villous; leaf blades membranous, sparsely pilose above, densely tomentose-lanate beneath, 10–20 cm. long and nearly as wide, 5–7-parted, the lanceolate, acuminate lobes minutely and remotely spinulose-denticulate, the basal sinus 1–2 cm. broad, 2–3 cm. deep; staminate flowers red, densely spicate-capitate, the lanate peduncles 20–30 cm. long; calyx tube narrowly ovoid, rounded at the base, densely white-lanate, 6–8 mm. long, 4 mm. thick, the erect, nearly straight, subulate, lanate sepals 16–18 mm. long; petals linear, densely villous, especially at the base, 6–8 mm. long; anthers cordiform, replicate below, with a broad, muticous connective; pistillate flowers many, racemose, the pedicels 1–3 cm. long; calyx tube 16–18 mm. long; sepals 10–12 mm. long, equaled by the petals.

San Martín: Tarapoto, *Spruce* 4297.—Loreto: Uanano, Lower Río Napo, *Tessmann* 3708 (det. Harms ex descr.). San Isidro,

Tessmann 4956 (det. Harms ex descr.).—Without locality: (*Gay 791*; *Mathews 1226*).

Anguria longipedicellata (Cogn.) Macbr., comb. nov. *Guraniopsis longipedicellata* Cogn. Bot. Jahrb. 42: 174. 1908; 192.

Glabrous or nearly so except for the leaves beneath and the loose racemes of conspicuously long-pediceled flowers; petioles 3–4 cm. long; leaf blades 12–20 cm. long and broad, with 3–5 repand-dentate, acute lobes, slightly scabrous above, villous-puberulent beneath; flowers monoeious, both staminate and pistillate peduncles 8–10 cm. long, the filiform pedicels 3–8 cm. long; calyx tube villous-puberulent, 1.5–2 cm. long, 2 mm. broad, the erect, subulate sepals 8–10 mm. long, the broadly obovate, puberulent petals 7 mm. long; anthers 5 mm. long, straight, with a narrow connective, scarcely produced.—An anomalous plant, with the green calyx and thin, broad, spreading petals constricted at the base, as in *Anguria*, sens. strict., but petals pale yellow and exceeded by the sepals as in Sect. *Gurania*, which caused Cogniaux to create for it an intermediate genus. As in *A. pachypoda* (Harms) Macbr., the sepals may much exceed or only equal the petals; both *Guraniopsis* and *Gurania* can be maintained as genera only on the character of the petals. Illustrated, Pflanzenreich IV. 275, pt. 1: 193. Neg. 8973.

Junín: In rocks at edge of thicket near Huacapistana, 1,800 meters, *Weberbauer 1969*, type; 247.

Anguria Mathewsii Macbr., nom. nov. *Gurania parviflora* Cogn. Diag. Cucurb. 1: 38. 1876; 224; non *A. parviflora* Cogn.

More or less villous-hirsute throughout except the pilose calyces and papillose petals, the thin, undivided leaf blades narrowly ovate, scarcely at all cordate, acuminate, remotely spinulose-denticulate, about 15 cm. long and half as wide; petioles 2–3 cm. long; staminate flowers 10–15, capitately subcorymbose, the sparsely pilose peduncle 12–15 cm. long, the puberulent pedicels 5–7 mm. long; calyx tube sordid-red, narrowly ovoid, rounded at the base, 4–5 mm. long, half as broad, the sepals erect, ovate, 2–3 mm. long, the narrowly ovate petals glabrous within, 1.5–2 mm. long; anthers basally replicate, 4 mm. long, the narrow appendage apically papillose.—*G. neogranatensis* Cogn., 221, of Colombia and Bolivia, may well occur and would be sought here; it has deeply 3-lobed leaves, tomentose calyces with spreading sepals 4–5 mm. long, and pubescent anther connective. *G. Eggersii* Sprague & Hutchinson, 206, Ecuadorian, is peculiar in its 5-parted leaves, densely papillose petals, and straight anthers.

Peru: Without locality (*Mathews 1218*, type).

Anguria pachypoda (Harms) Macbr., comb. nov. *Gurania pachypoda* Harms, Notizbl. Bot. Gart. Berlin 9: 991. 1926.

Glabrous except for the puberulent calyces, and well marked by the large, medially 3-lobed leaves and head-like racemes with the thick pedicels persisting; petioles 7–9 cm. long; leaf blades broadly cordate at the base but the blade more or less narrowed to the petiole, the oblongish lobes with an acumen 2–3 cm. long, remotely spinulose-denticulate or subentire, to 30 cm. broad and about as long, 3-nerved from the base, the reticulation prominent beneath; axillary peduncle to nearly 30 cm. long; pedicels congested, puberulent, 3–4 mm. long; calyx tube globose-campanulate, 5 mm. long, 4–5 mm. thick; sepals glabrous, lax, linear-lanceolate, 12–15 or sometimes only 5–7 mm. long, the shorter petals papillose; anthers basally replicate, the appendage elongate-conical.—Not placed by the author. Calyx fiery red, yellow within; a liana 3 meters long (*Tessmann*). *A. Wageneriana* Schlecht., 215, found as near as Ecuador, has rounded or acute leaf lobes. Neg. 9004.

Loreto: Flood-free forest, San Antonio, middle Marañón, *Tessmann* 4934. *Krukoff* 6969 of Brazil, distributed as *G. Ulei*, may belong here. Brazil.

Anguria pycnocephala (Harms) Macbr., comb. nov. *Gurania pycnocephala* Harms, Notizbl. Bot. Gart. Berlin 10: 182. 1927.

Stems deeply sulcate, more or less lanuginous-villous as also the petioles, these 1–2.5 cm. long; leaf blades suborbicular, 3-lobed to below the middle, cordate with a broad sinus, remotely denticulate, thin, sparsely pilose or glabrate above, the lobes more or less obovate, oblong, or ovate, acuminate, the middle one 7–11 cm. long; peduncle villous or glabrate, to 20 cm. long; flowers capitate-congested; pedicels pilose, mostly shorter than 6 mm.; calyx narrowly urceolate, loosely pilose or villous, 13–16 mm. long; sepals unequal, linear-lanceolate, acuminate, 17–27 mm. long; petals short-lanceolate, 4–5 mm. long; anther connective short, appendaged.—Near *G. longiflora* Cogn., 211, with subentire leaves (Harms). Sepals fiery red; petals orange (*Tessmann*). Neg. 9006.

Loreto: Yarina-cocha, 155 meters, in upland forest, *Tessmann* 5401, type. Santa Rosa, 135 meters, in forest, *Killip & Smith* 28726; corolla orange-red, anthers yellow. Between Yurimaguas and Balsapuerto, 140 meters, in forest, *Killip & Smith* 28137; sepals red, corolla yellow.—Junín: Puerto Bermúdez, 375 meters, in forest, *Killip & Smith* 26663; corolla bright orange, anthers yellow.

Anguria pyrrhocephala (Harms) Macbr., comb. nov. *Gurania pyrrhocephala* Harms, Notizbl. Bot. Gart. Berlin 9: 991. 1926.

Rather similar to *A. speciosa* but the pubescence of the stems very dense and longer, the trichomes 4–7 mm. long, brownish; petioles 3–6 cm. long or longer; leaves more or less deeply cordate, almost setaceous-caudate; calyx campanulate-subglobose, with only a few hairs or almost none, nearly 7 mm. long, 5–6 mm. broad; sepals 2 cm. long or longer, filiform-acuminate; petals 10–12 mm. long, papillose-villous; anthers retroreplicate at the base.—By the character of the anthers allied to *A. villosa* (Cogn.) Macbr., comb. nov. (*G. villosa* Cogn. Diag. Cucurb. 1: 25. 1876) and *A. crinita* (Huber) Macbr., comb. nov. (*G. crinita* Huber, Bull. Soc. Bot. Genève, II. 6: 212. 1914), both of the Amazonian region, the former with calyx tube only 2 mm. long and broad, the latter with orange-pubescent calyces and petals only 6 mm. long, the sepals 2–3 mm. long. The Ecuadorean *G. phanerosiphon* Sprague & Hutch., 202, has a villous calyx and petals united below. Creeping on the floor of flood-free forest; calyx green below, the sepals fiery red with whitish pubescence, the petals yellow (*Tessmann*). Neg. 9007.

Loreto: Mouth of Río Santiago, 160 meters, upland forest, *Tessmann* 4658. Above Iquitos, *Tessmann* 5215. Santa Rosa, 135 meters, in forest, *Killip & Smith* 28749; corolla bright orange, anthers yellow. Mishuyacu, 100 meters, in forest, *Klug* 1106; flowers red, yellow within.

• **Anguria rufipila** (Cogn.) Macbr., comb. nov. *Gurania rufipila* Cogn. Diag. Cucurb. 1: 30. 1876; 212.

Distinct from other species similar in appearance by the rusty instead of white or translucent pilosity, this especially dense on the stems, petioles, peduncles, and leaf nerves beneath; petioles 6–8 cm. long; leaf blades nearly 3-parted, the long-acuminate, oblongish lobes conspicuously repand-dentate, the middle one 17–22 cm. long, at the middle 9–13 cm. wide, the lateral ones smaller; staminate flowers fiery red, terminally congested on stout peduncles 15 cm. long or longer; pedicels 1–3 mm. long; sepals erect, subulate, 10–13 mm. long; petals ovate-lanceolate, villous, 3 mm. long; anthers straight, 4 mm. long, the extremely narrow connective with a smooth appendage.—*G. boliviana* Rusby, 220, is more or less rusty-tomentose, with orange-yellow, umbellate flowers on pedicels 1 cm. long. Neg. 9008.

Loreto: Leticia, *Ule* 6208. La Victoria, in forest, *Williams* 2543; edge of forest, *Williams* 2905. Brazil.

Gurania Smithii Standley, sp. nov.

Herbacea scandens, caulibus gracillimis pilis longis laxis albidis patentibus dense villosopilosis, internodiis elongatis; folia interminora petiolata membranacea, petiolo 2–3 cm. longo dense longivilloso; foliola 3.6–9 mm. longe petiolulata elliptica vel oblongo-elliptica inaequalia, apice abrupte breviter cuspidata, basi obtusa vel subrotundata et saepe valde obliqua, remote obscure repandodenticulata vel fere integra, utrinque pilis longissimis laxis albidis sparse villosa, in statu juvenili dense villosa; flores masculi brevissime racemosi, racemis umbelliformibus paucifloris ca. 1.5 cm. latis, pedicellis dense villosis vix 2 mm. longis; calyx extus dense laxepilis longis villosus, tubo hemispherico-tubuloso 4 mm. longo basi rotundato, sepalis inaequalibus ovato-lanceolatis 3–4.5 mm. longis attenuato-acutis; petala triangulari-subulata sepalis plusquam duplo breviora; antherae ovals, connectivo lato, appendice parvo glabro.

Junín: Pichis Trail, Eneñas, 1,600–1,900 meters, in forest, in 1929, *Killip & Smith 25773* (type in U. S. Nat. Herb.; photo. in Herb. Field Mus.).

Calyx orange-red.

Anguria speciosa Poepp. & Endl. Nov. Gen. & Sp. 2: 51. *pl.* 169. 1838; 202. *Gurania speciosa* Cogn. Diag. Cucurb. 1: 16. 1876.

Similar in pubescence to *A. eriantha* and nearly similar in other respects, but the leaves undivided or merely repand-lobed, the peduncles sometimes only 20 cm. long, or 40 cm. long; petals much shorter, to 5 mm. long; anthers to 4 mm. long.—*G. tubulosa* Cogn., 215, Ecuadorean, is glabrate, the yellow petals connivent into a tube.

Huánuco: Casapí and Cochero, *Poeppig 1664*, type.—Junín: Chanchamayo Valley, 1,000 meters, *Weberbauer 2340*; 283; *Schunke 360*.—Loreto: Puerto Limón, *Tessmann 3853* (det. Harms).—Río Acre: Seringal Auristella, *Ule 9873*.

Anguria spinulosa Poepp. & Endl. Nov. Gen. & Sp. 2: 52. *pl.* 170. 1838; 216. *Gurania spinulosa* Cogn. Diag. Cucurb. 1: 17. 1876.

A long, stout vine, ligneous below, with deeply sulcate stems; petioles tomentulose, 6–15 cm. long; leaf blades scabrous or glabrate above, puberulent-pilose beneath, 15–40 cm. long and broad, medially 3-lobed, the lobes acute, remotely spinulose-dentate, the basal sinus 4–8 cm. deep; staminate flowers many, congested, the shortly villous-tomentulose peduncles to several dm. long; pedicels 1–3 cm.

long; calyx yellowish, subrotund at the base, densely strigose-puberulent, about 2 cm. long, the linear, erect sepals (6-) 10-13 mm. long; petals yellow, tomentulose, 6-7 mm. long; anthers basally replicate, 12-13 mm. long, with a narrow connective and a linear, glabrous appendage; pistillate flowers fasciculate, the fruiting peduncles 2-3 cm. long; fruit oblong, 6-7 cm. long, 15-18 mm. thick.—Var. *glabrata* Cogn. is glabrate, the leaves sparsely and minutely pilose on both sides. Neg. 9011.

Ayacucho: Above Aina, 1,800 meters, *Weberbauer 5606*, the var.—Río Acre: *Ule 9872, 9910*.—Huánuco: Huánuco (?), *Poeppig*. Cochoero, *Poeppig 1393*. Vilcabamba, 1,800 meters, *4998*.—Without locality: *Ruiz & Pavón 26-2*.—Cuzco: Valle de Lares, *Herrera 1806* (det. Harms). Below Pillahuata, 2,000-2,300 meters, along trail in forest, *Pennell 14071*; flowers salmon-orange.—San Martín: Zepelacio, 1,200-1,600 meters, in forest, *Klug 3548*; flowers yellow.—Junín: Chanchamayo Valley, 1,500 meters, *Schunke 566, 565, 480*. Above San Ramón, 1,400-1,700 meters, edge of forest, *Killip & Smith 24716*; corolla orange-red, anthers pale yellow. Cahuapanas, 340 meters, in forest, *Killip & Smith 26765*. Puerto Yessup, 400 meters, *Killip & Smith 26324*. La Merced, 1,200 meters, on sunny shrubs, *5606*.—Loreto: Uanana on the lower Río Napo, *Tessmann 3706* (det. Harms). Lower Río Nanay, *Williams 291A, 293*. Iquitos, 100 meters, edge of forest, *Williams 1376, 1423, 1436, 7902*. San Antonio, 145 meters, in forest, *Williams 3422*. Puerto Arturo, 200 meters, in forest, *Williams 5087, 5127*. Fundo Indiana, 110 meters, in forest, *Mexia 6400*; a vine 6 meters long. Santa Rosa, 200 meters, *Williams 4944*. La Victoria, edge of forest, *Williams 2796, 2883*. Bolivia and Brazil to northern South America.

Anguria Tessmannii (Harms) Macbr., comb. nov. *Gurania Tessmannii* Harms, Notizbl. Bot. Gart. Berlin 9: 992. 1926.

Very similar to *A. ucayalina*, but the pedicels only 3-4 mm. long and the calyces densely viscid-pilose, the lobes sparsely hirsute; anthers 4 mm. long, the appendage slightly papillose.—Nearly *A. cissoides* Benth., with sparsely pubescent calyx, and *A. inaequalis* (Cogn.) Macbr., with sepals only half as long (2 mm.). As Harms hints, it seems doubtful that these plants actually represent different species. Blossoms fiery red; petals orange (Tessmann). Neg. 9015.

Loreto: Parinari on the lower Marañón, *Tessmann 5028*, type.—Ayacucho: Near Kimpitiriki, 400 meters, in forest, *Killip & Smith 23008*; corolla orange-red. Estrella, 500 meters, in forest, *Killip & Smith 23058*; corolla bright orange, anthers yellow.

Anguria ucayalina (Harms) Macbr., comb. nov. *Gurania ucayalina* Harms, Notizbl. Bot. Gart. Berlin 9: 993. 1926.

Nearly glabrous or sparsely and laxly pilose, especially the leaves beneath; petioles 2–3 cm. long; leaf blades trifoliate, the petiolules about 1 cm. long, the leaflets oblong-lanceolate, narrowed at both ends, the lateral ones strongly oblique, mostly about 10 cm. long, 3–4 cm. wide; peduncle 10–17 cm. long, glabrous or essentially so, like the densely aggregate flowers, the pedicels 5–10 mm. long or longer; calyx tube subcylindric-urceolate, 5–6 mm. long, 3 mm. broad; sepals glabrous, 3.5–4 mm. long, the petals 2–2.5 mm. long; anthers replicate at the base, to 5 mm. long, the narrowly acute appendages scarcely papillose.—Like *A. inaequalis*, with sepals 2 mm. long and calyx tube pubescent instead of glabrate or a trifle puberulent, and *A. cissoides*, also more pubescent, especially the calyx. The species seems to me to be very doubtful. Calyx fiery red; petals yellow (Tessmann). Neg. 9016.

Loreto: Cashiboplaya on the middle Río Ucayali, *Tessmann 3512*, type.

Anguria Ulei (Cogn.) Macbr., comb. nov. *Gurania Ulei* Cogn. Pflanzenreich IV. 275, pt. 1: 205. 1916.

Entire plant very sparsely pilose and appressed-puberulent, the two sorts of pubescence intermixed, the flowers more densely pubescent; petioles 3–5 cm. long; leaf blades thin, cordate-orbicular, 12–17 cm. long and broad, deeply 3-lobed, the lobes oblong-obovate, their margins remotely denticulate; sinus broadly rectangular; staminate peduncles about 20 cm. long, the pedicels to 10 mm. long; calyx 5–6 mm. long, 4–5 mm. wide, the oblong-ligulate sepals 8–11 mm. long, far exceeding the pale, finely papillose, exerted petals; connective broad, glabrous, the papillose appendage 1 mm. long, the anthers basally replicate; pistillate flowers solitary or geminate, the peduncles 3–4 cm. long.—Compare *A. Weberbaueri* for specimens confused with this species. Neg. 9017.

Río Acre: Seringal Auristella, *Ule 9868*, type.—San Martín: Tarapoto, 360–900 meters, *Williams*.

Anguria Weberbaueri (Harms) Macbr., comb. nov. *Gurania Weberbaueri* Harms, Notizbl. Bot. Gart. Berlin 7: 502. 1921.

Rather stout and glabrous except for some minute puberulence on the leaf nerves above (or leaves sometimes pubescent) and on the racemes, the calyces sparsely puberulent-villous; petioles to 10 cm. long or longer; leaf blades 20–25 cm. wide and 25 cm. long

or larger, 3-lobed even to below the middle, often deeply cordate at the base, the lobes remotely subspinulose, denticulate, ovate or ovate-lanceolate, acuminate; staminate peduncles 10–20 cm. long, bearing as many as 10 fiery red flowers, the rusty-puberulent pedicels to 7 mm. long or about as long as the narrow calyx tube, this acute or obtusish at the base, the linear-filiform sepals nearly glabrous, much longer than the petals, 6–9 mm. long.—*Tessmann 3506* has leaves pubescent on both sides but is referred here in *Herb. Berlin* by Harms without question; *Tessmann 4977* is determined by Harms, “cf. *Weberbaueri*.” Separated by the author from *G. pseudo-spinulosa* Cogn., 221, of Colombia and Brazil by its glabrous stems and smaller calyces, the tube not rounded at the base. The Klug specimens were distributed as *G. Ulei*, which compare.

San Martín: Zepelacio, *Klug 3449*.—Huánuco: Valley of Río Mayro, in evergreen bushwood, 1,300 meters, *Weberbauer 6754*, type.—Loreto: Yarina-cocha, *Tessmann 3506* (det. Harms). San Isidro, *Tessmann 4977(?)*. Florida, Río Putumayo, in clearing, *Klug 2120*. Iquitos, 100 meters, in thickets and waste places, *Killip & Smith 27338, 26894*. “Maruchao.”

8. DIEUDONNAEA Cogn.

High-climbing, villous lianas, the creeping, leafless base bearing the sessile staminate racemes of reddish, dioecious flowers. Calyx and corolla 5-parted, the tube of the former urceolate-subglobose, the segments of the latter small, scaly at the base. Stamens 2, free; anthers subpeltate, plane, ovate, 2-celled, the narrow cells flexuous, the connective dilated.—A genus of doubtful validity in view of the variation of characters in *Anguria*.

Dieudonnaea rhizantha (Poepp. & Endl.) Cogn. Bull. Soc. Bot. Belg. 14: 239. 1875; 519. *Anguria rhizantha* Poepp. & Endl. Nov. Gen. & Sp. 2: 52. pl. 171. 1838.

Vigorous, with stout, sulcate stems and petioles, the latter about 10 cm. long; leaf blades broadly ovate, sparsely long-villous, becoming scabrous on both sides, the margins ciliate and remotely spinulose-dentate, slightly cordate, more or less 3-lobed, the nerves prominent and reticulate beneath; staminate racemes elongating to 15 cm., the stout, sparsely pilose pedicels 1–3 cm. long; bracts deciduous; calyx in age lustrous, about 1 cm. long, 8 mm. broad, the lobes ovate-lanceolate, acuminate, to 20 mm. long; petals glabrous within, 4–5 mm. long; pistillate flowers apparently unknown.

—Var. *Poeppigiana* (Schlecht.) Cogn., doubtfully more than the extreme variation in leaf lobing, has leaves 3-lobed to four-fifths their length, the lobes more oblong-lanceolate than triangular, the middle one constricted at the base. Neg. 9024.

Huánuco: Tocache and Yurimaguas, *Poeppig*, type.—Loreto: Puerto Limón, *Tessmann* 3868 (det. Harms). Lower Huallaga, *Tessmann* 3762 (det. Harms). Lower Río Napo, *Tessmann* 3728. Mishuyacu, 100 meters, in forest, *Klug* 157, 786; flowers red.

9. APODANTHERA Arnott

Reference: Cogniaux, *Pflanzenreich* IV. 275, pt. 1: 54–67. 1916.

Perennial herbs, climbing or prostrate, with simple or bifid tendrils and monoecious or dioecious flowers, the staminate usually in racemes, the pistillate solitary or rarely glomerate. Anthers usually 3, sessile, dorsifixed, free or lightly coherent, 1-celled, the cells rarely curved, the connective little if at all produced. Three staminodia present in the pistillate flowers. Style with 3 fleshy stigmas, inserted in a disk. Fruit fleshy, indehiscent, with many horizontal seeds.—Besides the following, *A. scabra* Cogn., op. cit. 58, of Ecuador, may well be expected; it is unique in its not at all lobed leaves that are long-acuminate and much longer than broad, scabrous on both sides.

Leaves entire or slightly lobed or serrate, merely tuberculate-asperous beneath; staminate racemes 2-flowered.. *A. biflora*.

Leaves more or less deeply lobed, usually somewhat hairy beneath; staminate racemes several-many-flowered.

Leaves large, broadly 3-lobed, like the calyx densely woolly-pubescent beneath..... *A. eriocalyx*.

Leaves not broadly 3-lobed or the leaves and calyx not both woolly-pubescent.

Calyx glabrous or sparsely and laxly pilose. (Cf. *A. Weberbaueri* in age.)

Leaves densely pubescent beneath, the pubescence minute.
A. mucronata.

Leaves laxly pilose beneath..... *A. tumbeziana*.

Calyx densely pubescent, at least at the base, or scabrous-hirsute.

Flowers only a few mm. long; leaves ashy-pubescent.

A. cinerea.

Flowers 1–3 cm. long; leaves usually green, at least above.

Leaves densely tomentulose beneath; calyx more or less villous.

Calyx densely viscid-villous or tomentose. *A. Mandonii*.

Calyx villous only at the base. *A. Mathewsii*.

Leaves laxly villous or scabrous beneath; calyces hirsute or scabrous-hirsute.

Calyx and mature leaves beneath shortly scabrous-pubescent. *A. Weberbaueri*.

Calyx and mature leaves beneath laxly villous-hirsute. *A. Herrerae*.

Apodanthera biflora Cogn. Diag. Cucurb. 2: 43. 1877; 63.

Marked at once by its solitary or binate staminate flowers borne on glabrous or slightly pilose peduncles about as long as the ovate-cordate leaves, these obscurely denticulate, glabrous above, white-tuberculate-asperous or scabrous beneath, entire or deeply 3-lobed, 5–10 cm. long and broad or larger; calyx villous, about 15 mm. long, 3 mm. thick, the subulate sepals nearly as long; petals yellowish, glabrous, to 3.5 cm. long; anthers more or less flexuous; fruit glabrous, smooth, 2 cm. long.—Illustrated, op. cit. 63. Neg. 27117.

Piura: Between Piura and Hacienda Ñomala, 200 meters, *Weberbauer 5944*. Negritos, *Haught F46* (det. Harms). Ecuador. “Yuca del monte.”

Regarding this species Mr. Haught’s notes supply the following information: A herbaceous vine from a perennial, tuberous root. The vines reach a length of about 2 meters, and have a disagreeable smell, about like that of the “stinking gourd” of the southwestern United States. Fruit striped light and dark green, about 6 cm. long and 4 cm. wide. The root is edible after cooking, and is known as “yuca del monte.” Found throughout the region, but growth takes place only after the heavy rain, usually at intervals of several years.

Apodanthera cinerea Cogn. Pflanzenreich IV. 275, pt. 1: 59. 1916.

A monoecious vine, distinguishable at once from other Peruvian species by its small flowers, these campanulate, 3–4 mm. long, 8–10 borne on hirsutulous-puberulent pedicels 4–8 mm. long, the common, similarly pubescent peduncle about 10 cm. long; leaves roundish, especially beneath appressed-ashy-villous, 4–6 cm. wide and long, deeply 3–5-lobed, with a broad basal sinus; tendrils simple; sepals

2.5 mm. long; petals yellow, villous on both surfaces, 3 mm. long; fruit smooth, 2 cm. thick, half again as long, borne on a peduncle 5–8 mm. long. Neg. 8951.

Loreto: Salinas de Pilluana, Huallaga, *Ule* 6759, type.

Apodanthera ericalyx Cogn. Bot. Jahrb. 50: Beibl. 111: 75. 1913; 57.

Closely allied to and in general resembling *A. Mandonii*, but the stems and petioles glabrous or lightly villous, the leaves often much larger, 8–16 cm. long and wide, and, especially, the calyx very long-lanate, 14 mm. long, the sepals 4 mm. long; petals yellow, obovate-angled, glabrous within, 5 mm. long; anthers lightly coherent, 6 mm. long; fruit 4 cm. long.—The leaf pubescence beneath is a somewhat tangled villosity. Neg. 8953.

Lima: Mountain north of Chosica, 1,900 meters, *Weberbauer* 5343.

Apodanthera Herrerae Harms, Notizbl. Bot. Gart. Berlin. 11: 770. 1933.

Glabrate or lightly pilose, especially the young leaves beneath, the staminate inflorescences more or less densely hirsute, especially the narrow, tubular-funnelform receptacle; petioles 2–5 cm. long; leaf blades roundish, 3–5-lobed sometimes to the middle, the lobes ovate or lanceolate, coarsely and irregularly lobulate to subentire, often mucronulate at the tip; blades at the base somewhat cordate, the middle lobe, from sinus to apex, 6–12 cm. long, the axillary racemes little longer; pedicels 0.5–2.5 cm. long; receptacle nearly 1.5 cm. long; sepals 2–3 mm. long; corolla lobes subrotund, 5–7 mm. long; anthers 4 mm. long; pistillate flowers solitary, the more or less hirsute pedicels to 4 cm. long; ovary oblongish, to 2 cm. long, hirsute-villous.—Compared by the author with *A. hirtella* Cogn. Pflanzenreich IV. 275, pt. 1: 61, of Bolivia, with much more deeply parted leaves, racemes nearly twice as long, and longer sepals.

Cuzco: Huasas near Oropesa, 3,200 meters (*Herrera*); *Herrera* 3038. "Ckotockoto."

Apodanthera Mandonii Cogn. Diag. Cucurb. 2: 41. 1877; 57.

A slender-stemmed, monoecious vine, more or less villous, especially the leaves softly so beneath or sometimes tomentose; petioles 1–2 cm. long; leaf blades nearly round, deep green and sparsely puberulent-scabrous above, 5–8 cm. long and broad, usually deeply 3–5-lobed, the lobes often lobulate, undulate, or denticulate,

the rounded basal sinus about 2 cm. deep; tendrils very unequally bifid; staminate peduncles to 12-flowered, 8 cm. long or more than twice as long, the tomentose pedicels 5–8 mm. long; calyx subacute at the base, ashy-tomentose, 10–12 mm. long, 3 mm. thick, the sepals to 2 mm. long; anthers 5 mm. long; pistillate peduncle 2–3 cm. long; pistillate calyx 6–7 mm. long, the sepals to half as long, the petals as long; fruit glabrous, 2.5 cm. long.—Var. *canescens* Cogn. has leaves densely tomentose beneath, the middle lobe longer; in var. *dissecta* Cogn. the lobes of the leaves are very narrow and more or less laciniate. Neg. 27116.

Peru: Without locality (*Gay 1815*; var. *canescens*); (*Gay 1967*; var. *dissecta*).—Moquehua: Carumas, *Weberbauer 7263, 7273a.* (var. *dissecta*).—Cuzco: Below Lares, 2,900 meters, *Weberbauer 7897*; flowers yellow (det. Harms).—Huánuco: San Rafael, *Sawada 113* (det. Harms). Ambo, 2,100 meters, canyon slopes, trailing on banks, *3146*.—Lima: Matucana, 2,400 meters, trailing on slide rock slope, *2891*; fruits green; on steep, grassy slope at base of cliff, *337*; plants 3–6 meters long. Bolivia.

Apodanthera Mathewsii Arnott ex Hook. Journ. Bot. 3: 274. 1841; Cogn. Diag. Cucurb. 2: 40. 1877; 56.

Similar to the related *A. mucronata*, but the stems villous-puberulent, the leaves slightly broader than long, only lightly 3-lobed, and the basal sinus subrectangular, 2–3 cm. wide, the tendrils densely puberulent and, especially, the staminate peduncle only 4–8 cm. long or about half as long as the leaves; calyx villous at the base, 10–12 mm. long; petals 3–4 mm. long.

HisanESCO (*Mathews 932*, type).

Apodanthera mucronata Cogn. Diag. Cucurb. 2: 40. 1877; 56.

A dioecious vine with lightly pubescent stems; petioles villous-tomentose, to 3 cm. long; leaf blades suborbicular, dark green and scabrous above, somewhat white-tomentose beneath, about 10 cm. long and wide, 3–5-lobed often to the middle, the basal sinus broad; tendrils sparsely pilose; staminate peduncle 8–20-flowered, 9–12 cm. long, the pedicels 1–2 cm. long; calyx short-attenuate at the base, 9–10 mm. long, 2 mm. thick; sepals to 2 mm. long; petals puberulent-villous, 3 mm. long; anthers 3–4 mm. long. Neg. 8957.

Without locality, *Ruiz & Pavón*.

Apodanthera tumbeziانا Harms, Notizbl. Bot. Gart. Berlin 11: 770. 1933.

Similar to *A. mucronata*; petioles to 4 cm. long; sinus of the cordate leaves to 4 cm. deep; pubescence sparser, looser, especially on the leaves beneath; peduncles 14–16 cm. long; receptacles 3–3.5 mm. thick at the tip; ovary narrow, 16 mm. long, the glabrate receptacle 6–7 mm. long, 3 mm. broad.—Harms refers here with some doubt to my collection.

Tumbes: Mountain east of Hacienda La Choza, 800 meters, *Weberbauer* 7691, 7691a, type.—Huánuco: Muña, on sunny shrubs, flowers yellow, 3959.

***Apodanthera Weberbaueri* Harms, Notizbl. Bot. Gart. Berlin 11: 771. 1933.**

A decumbent perennial with nearly the characters of *A. Mandonii* var. *dissecta*, but the pubescence harsh instead of tomentose, that on the leaves beneath scabrous-puberulent in age, that of the inflorescence shortly hirsute-villous or scabrous-hirsute; sepals only about 1.5 mm. long; pistillate flowers subsessile, extremely narrow.—A loma plant with golden yellow flowers.

Lima: Pativilca, Prov. Chancai, 200–300 meters, sometimes climbing on shrubs, *Weberbauer* 7485, type.

10. MELOTHRIA L.

Reference: Cogniaux, *Pflanzenreich* IV. 275, pt. 1: 75–129. 1916.

Very similar to *Apodanthera*, but the calyx always campanulate. Flowers usually monoecious. Filaments usually obvious, the anthers basifixed.

***Melothria fluminensis* Gardner, Lond. Journ. Bot. 1: 173. 1842; 85.**

A branching vine with thin, cordate, lightly angulate-lobed or entire leaves, glabrous or more or less asperous, and tiny, racemose flowers borne on a filiform peduncle 2–3 cm. long; leaves 4–5 cm. long, nearly as wide; calyx narrowly campanulate, 1.5–2 mm. long; corolla yellow, with pilose lobes; anthers orbicular; fruit 3-celled, ovoid, 9–13 mm. long, 6–9 mm. thick.—Var. *ovata* Cogn. has entire leaves, 6–12 cm. long, 4–9 cm. wide; var. *microphylla* Cogn. has leaves to 3 cm. long and peduncles to 2.5 cm. Neg. 27162.

San Martín: Tarapoto, abandoned land, *Williams* 5595. Chazuta, 260 meters, old clearing, *Klug* 3989; flowers yellow. Juanjuí, 400–800 meters, in clearing, *Klug* 4329. Tarapoto, *Ule* 6465.—Rio Acre: Seringal Auristella, *Ule* 9877.—Tumbes: Mountains

southeast of La Choza, 300 meters, *Weberbauer 7727*.—Junín: La Merced, in hedgerow, 600 meters, *5263*; flowers yellow.—Loreto: Fortaleza, 200 meters, *Williams 4412*. Lower Río Nanay, *Williams 556*.—Lima: Chancay, *Ruiz & Pavón*. (*Lesson*; var. *ovata*). South America to Mexico and West Indies.

Melothria Hookeri Cogn. in DC. Monogr. Phan. 3: 588. 1881; 89.

Similar in appearance to *M. fluminensis*, but the leaves more or less asperulous-hispidulous above and especially so beneath, more or less distinctly 3-lobed, the angles of the lobes sharp, the basal sinus narrow; peduncle 4–7 cm. long; leaves sometimes 10 cm. long, 4–9 cm. wide; calyx broadly campanulate; fruit oblong-fusiform, acute, 4 cm. long, 1.5 cm. thick.

Huánuco: Cochero, *Poeppig 1408*. Pampayacu, 1,050 meters, *5111* (det. Harms). Chanchamayo Valley, 1,200 meters, *Schunke 363*. Casapí (*Mathews 2042*).—San Martín: Tarapoto, *Ule 6548*. Morales, 900 meters, *Williams 5652*. Bolivia.

11. SICANA Naud.

Closely allied to *Calycophyllum*, but differing in its short campanulate calyx, not at all inflated; the staminate flowers lack the pistillodium which has been ascribed to the related genus but was not found by Pittier; cf. Contr. U. S. Nat. Herb. 20: 487. 1922.

Sicana odorifera (Vell.) Naud. Ann. Sci. Nat. IV. 18: 181. pl. 8. 1862. *Cucurbita odorifera* Vell. Fl. Flum. 10: pl. 99. 1827; ex Roem. Syn. Fasc. 2: 90. 1846. *Cucurbita euodicarpa* Hassk. Hort. Bogor. 305. 1858.

A tall, smooth, dark green vine with ample, roundish, 3-lobed, cordate leaves, the lobes acute or acuminate, undulate, denticulate; staminate peduncle, 2–4 cm. long; calyx ashy-tomentulose, the tube 6–8 mm. long, the lobes 9–12 mm. long, 5–8 mm. wide; corolla almost fleshy, tomentulose, the lobes 5-nerved without, 2 cm. long, 10–12 mm. wide; filaments glabrous, 3–5 mm. long, half as long as the extremely flexuous anthers; fruit generally cylindric or sometimes oblong-ovoid, to 50 cm. long or longer, often much shorter; seeds about 1 cm. long.—Later authorities cite the Hasskarl name "*euodicarpa*."

One of the plants growing in Peru first to be commented upon, for it was described in 1658 by Piso, who at that time found it much in favor because of its fragrant fruits that were used, as at

present, to scent linen and clothing; and Ruiz and Pavón remarked its "delightful fragrance," for which it was much used to adorn altars. It happens that it was the first plant collected by me, for it was cultivated in the patio of the well known physician and enthusiastic botanist of Lima, Dr. A. Aspiazu, whose name may well be mentioned, for he subsequently led me to many other interesting plants. A model of this specimen may be seen in the exhibits of Field Museum. It is not certain that the species is known in Peru in a native state.

Loreto: Puerto Arturo, 200 meters, *Williams 5223*. San Isidro, *Tessmann 4968, 4985*. Yarina-cocha, *Tessmann 5411*. (All det. Harms.)—Lima: Lima, cultivated, 73. San Juan del Oro (near Canta?) (*Baraquin*).—Without locality, *Ruiz & Pavón*. Brazil to West Indies. "Curua," "curuba," "secana," "upe," "padea," "olerero."

12. CALYCOPHYSUM Karst. & Triana

Lianas with monoecious, solitary flowers, the corolla nearly included in the globose-inflated calyx. Stamens 3, free; anthers fleshy, one of them 1-celled, the cells flexuous, the broader connective not produced. Ovules many, horizontal.—Harms, Notizbl. Bot. Gart. Berlin 11: 774, remarks that *Williams 5037*, Lower Río Huallaga, peduncles 2-3 cm. long, calyx 3-3.5 cm. long, is probably new, but the material is too meager for description.

Calycophysum Weberbaueri Harms, Notizbl. Bot. Gart. Berlin 11: 773. 1933.

A vine with 3-5-parted tendrils, the angulate-sulcate stems, petioles (8-10 cm. long), and leaves on the upper surface sparsely and shortly pubescent or puberulent; leaves broadly cordate-ovate or cordate-suborbicular, the deep sinus broad or narrow, apically produced into a slender point, remotely short-denticulate, sometimes obscurely trilobed, thin, densely tomentose beneath, 12-16 cm. long; staminate peduncle short-hirsutulous toward the flower, stout and 25-40 cm. long; calyx puberulent-hirsutulous, about 3 cm. long, the acuminate lobes 1-1.5 cm. long; tubular portion of the corolla almost 2.5 cm. long, the oblongish, acute lobes as long; anthers strongly flexuous.—The author suggests a relationship with *C. gracile* Cogn. of Colombia and *C. villosum* (Cogn.) Pittier of Bolivia, the former with larger flowers and 3-lobed leaves, the latter with longer pubescence and larger calyx. The type species, *C. pedunculatum* Karst. & Triana of Colombia and Ecuador, probably

extending into Peru, has 3-lobed leaves and a calyx 4-5 cm. long, its lobes broadly triangular instead of narrowly so as in the other species.

Cuzco: Lares Valley near Calca, 1,800 meters, *Weberbauer* 7926.

13. CITRULLUS Neck.

Low, spreading, musk-scented annuals with deeply twice-lobed or dissected leaves and solitary, monoecious flowers, these rotate-instead of tubular-campanulate as in the preceding genus, which is similar otherwise in general characters.

Citrullus vulgaris Schrad. *Linnaea* 12: 412. 1838; 508.

Stems assurgent, branched, angled; leaves stiff, scabrous, deeply 3-lobed, the lobes pinnately parted, 10 cm. long or much larger; staminate peduncles villous, twice as long as the villous petioles, these about equaling the leaves; corolla greenish yellow, villous, about 3 cm. wide; ovary lanate; fruits about globose, the flesh sweet to very bitter.—The watermelon is the domesticated, cultivated form.

Lima: Huara, *Ruiz & Pavón*.—Loreto: Mishuyacu, 100 meters, in clearing, *Klug* 861. Adventive in warm regions from Africa. "Sandia."

14. LUFFA Adans.

Reference: Cogniaux & Harms, *Pflanzenreich* IV. 275, pt. 2: 61-75. 1924.

Scandent annuals, the leaves usually 5-7-lobed, the tendrils rarely simple, the rather large staminate flowers borne in short racemes on a long peduncle. Calyx campanulate. Petals 5, free. Stamens 3 or 5, inserted in the tube of the receptacle, the anthers exerted, their linear cells strongly flexed. Pistillate flowers solitary, with 3 (-5) staminodia. Fruit smooth or echinate, fibrous within, 3-celled, apically operculate, the many seeds horizontal.

Luffa acutangula (L.) Roxb. *Hort. Beng.* 70. 1814; 68. *Cucumis acutangulus* L. *Sp. Pl.* 1011. 1753.

Stems 5-angled, the angles scabrous like the long, stout petioles and the leaves on both sides, these harshly so, round, palmately 5-7-angled or lobed, often about 20 cm. wide; tendrils usually trifid; flowers pale yellow, pistillate and staminate in each axil, the peduncle of the latter to 15 cm. long, bearing 17-20 flowers on pedicels 1-4 cm. long; sepals lanceolate, carinate, a little longer

than the receptacle; petals 2 cm. long; stamens 3, the filaments barbed at the base, 3–4 mm. long; ovary and fruit 10-costate, the fruit 15–30 cm. long, 6–10 cm. thick, the seeds ovate, rugose.—The even more widely established and similar *L. cylindrica* (L.) Roem. may be distinguished by its 5 longer filaments and ecostate fruits, the seeds smooth and margined all around. Illustrated, Pflanzenreich IV. 275, pt. 2: 66 (habit) and 205 (fruits). Known in English as the sponge or dish-cloth gourd because of the sponge-like interior of the fruit, often used like a sponge. The young fruit serves as a vegetable and the sap, especially from the roots, is a purgative; cf. Harms, op. cit. 65 and 69, for references regarding these and other properties.

Loreto: Lower Río Pisque, *Tessmann* (det. Harms). Fortaleza, 200 meters, in pasture, *Williams* 4520. Iquitos, *Williams* 8219.—San Martín: Río Mayo, edge of forest, *Williams* 6253.—Ayacucho: Near Kimpitiriki, 400 meters, in thickets, *Killip & Smith* 22991. Native of Asia. "Taco."

***Luffa operculata* (L.) Cogn.** in Mart. Fl. Bras. 6, pt. 4: 12. pl. 1. 1878; 70. *Momordica operculata* L. Syst. ed. 10. 1278. 1759.

Rather similar to the preceding species, but the petioles slender, the leaves less scabrous, the tendrils bifid or simple, the peduncles 5–8 cm. long, 6–10-flowered, the petals 8–10 mm. long, the filaments 2–3 mm. long, the fruits beaked, their 10 costae spinulose, the brown seeds not margined.—Illustrated, Pflanzenreich IV. 275, pt. 2: 70. Cf. Harms, 71–72, who quotes at length from Peckolt regarding medicinal properties of this plant, known in Brazil as "buchinha," "bucha," "buxa," etc., where apparently it has long had repute as a medicine for general healing and for syphilis. Raimondi noted its use in Peru for washing clothes, "but especially the head!"

Loreto: Left bank of Río Marañón, above Rancho Indiana, 110 meters, *Mexia* 6402. Middle Río Ucayali, *Tessmann* 3293 (det. Harms). Ucayali to Sarayaco and from Supe northward, *Raimondi* (det. Harms).—Piura: Talara, *Haught* 19, F150.—Río Acre: *Ule* 9876 (det. Cogniaux). Tropical and subtropical America. "Espon-gillo," "jaboncillo."

Regarding the plant Haught gives the following notes: A very common, annual vine, reaching a height of 10 meters at least when support is available. When the fruit is ripe, a circular piece about 3 cm. across drops off the apex, and the seeds are gradually shaken

out by the wind. The fruit is dry, spiny, about 6–8 cm. long by 3–4 cm. across.

15. MOMORDICA L.

Reference: Cogniaux & Harms, *Pflanzenreich* IV. 275, pt. 2: 8–53. 1924.

The Peruvian species are much branched vines with lobed leaves, simple tendrils, solitary, large-bracted staminate flowers, and orange-colored, tubercled or crested fruits. Corolla rotate-campanulate. Stamens 3, the short filaments free, the flexuous-celled anthers at first coherent.

Momordica Balsamina L. Sp. Pl. 1009. 1753; 28.

Similar to *M. Charantia*, but the leaves glabrous, often smaller, 4–7 cm. long and wide, deeply 3–5-lobed; peduncles 3–7 cm. long, bracted at the tip; sepals ovate, acuminate, 6 mm. long, the orange-yellow petals 15 mm. long; fruit broadly ovoid or subglobose, 3–6 cm. long.—Adventive in warm regions of the New World.

Peru: (According to Cogniaux, *Spruce* 6461). Africa.

Momordica Charantia L. Sp. Pl. 1009. 1753; 24.

Younger branches puberulent; leaves about rotund, deep green, usually somewhat pubescent on both sides, sometimes 10 cm. long and broad, pedately 5–7-lobed often nearly to the base, the lobes dentate or lobulate; staminate peduncle bracted at the middle or near the base, 5–15 cm. long; sepals ovate-lanceolate, acute, 4–6 mm. long; corolla yellow, the segments 1.5–2 cm. long; fruit oblong, 8–30 cm. long.—Illustrated, *Pflanzenreich* IV. 275, pt. 2: 31. Native of the Old World but widely distributed in all warm regions and variously employed locally, especially in medicine; cf. Harms, op. cit. 27–28. The bitter leaves, after parboiling, serve as a vegetable; the sap from the leaves or fruit may be used as a remedy for fevers, colic, worms, etc.

Junín: La Merced, 600 meters, in hedgerows on sandy flat, 5321. —Loreto: Iquitos, 120 meters, *Williams* 7957; at edge of water, *Williams* 3683. Recreo, Yurimaguas, in pasture, *Williams* 3953. Mishuyacu, in clearing, 100 meters, *Klug* 48. La Victoria, *Williams* 2655. Lower Río Nanay, *Williams* 268.—San Martín: Chazuta, 260 meters, *Klug* 4042. Generally distributed in tropical America. "Papayilla."

16. ELATERIUM Jacq.

Reference: Cogniaux in DC. *Monogr. Phan.* 3: 857–869. 1881.

Herbaceous, perennial vines with cordate leaves and small, monoecious flowers, the staminate in racemes, the pistillate solitary. Calyx tube elongate-cylindric, usually 5-parted as also the rotate corolla, this with narrow, oblong-linear or lanceolate lobes. Stamen column elongate, terminating in the oblong or globose head of connate anthers, these with linear, sigmoid-flexuous cells. Ovules erect, ascending, or horizontal. Fruit small, obliquely ovoid, gibbous, rostrate, fleshy, 1-many-celled, elastically dehiscent.—Kuntze, *Rev. Gen.* 1: 256. 1891, changed the generic name, with reason according to his viewpoint, to *Rytidostylis* Kuntze.

Peduncles and leaves subequal.....*E. carthaginense*.

Peduncles much exceeding the leaves.....*E. amazonicum*.

Elaterium amazonicum Mart. ex Cogn. *Diag. Cucurb.* 2: 55. 1877; 864.

Stems many; petioles 3–15 cm. long; leaves thin, acute, mucronate-denticulate or 3–5-lobed, 9–14 cm. long, 6–11 cm. wide, finely nerved, the sinus subrotund; staminate peduncles 5–8-flowered, slender, 15–30 cm. long; calyx tube finally glabrous, nearly linear, 1.5–2 cm. long, 3–4 mm. wide at the tip, the teeth 0.5 mm. long; petals narrow, white, spreading, 10–13 mm. long; pistillate peduncles 4–8 mm. long, to 2 cm. long in fruit; fruit somewhat hispid with thickish setae, 2 cm. long, 12–15 mm. thick.—The flowers simulate those of some Apocynaceae. Illustrated, Mart. *Fl. Bras.* 6, pt. 4: pl. 31.

Loreto: Middle Río Ucayali, *Tessmann 3289* (det. Harms, “aff.”). Left bank of Río Marañón, below Rancho Indiana, 110 meters, overflowed bank, *Mexia 6460*; flowers white. Lower Río Nanay, edge of river, *Williams 462*. Iquitos, edge of river, 120 meters, *Williams 7909*. Pebas, *Williams 1859*. Brazil.

Elaterium carthaginense Jacq. *Enum. Pl. Carib.* 31. 1760; 859.

A vine, glabrous except for the angulate or more or less 3–5-lobed, very thin, acute leaves, these merely pustulate or sparsely short-villous and somewhat scabrous beneath, minutely and remotely or obscurely denticulate, 7–10 cm. long and nearly as wide; tendrils 2–3-fid; staminate peduncles to 5 cm. long, bearing about a dozen short-pedicelled, glabrous flowers 10–12 mm. long, the petals slightly longer than the cylindric calyx, this equaled by the stamens; fruiting peduncles about 1 cm. long or shorter, the long-setose fruits nearly 2.5 cm. long, 1.5 cm. thick.—Among other species known from

Ecuador or Brazil is *E. gracile* (H. & A.) Cogn. with petals much shorter than the calyx, staminate peduncles and leaves subequal. Not clearly Peruvian but in all probability occurring; the Ruiz and Pavón record, however, as shown by the specimen at Madrid, actually came from Guayaquil.

Peru: Probably. Cuba to Venezuela, Colombia, and Ecuador.

17. CYCLANTHERA Schrad.

Reference: Cogniaux in DC. Monogr. Phan. 3: 822–857. 1881.

Annual or perennial vines, similar to *Elaterium* but the calyx tube shallow or cup-like, the corolla lobes broadly ovate-oblong, the stamen column short, the anther cells conduplicate or longitudinally dehiscent or often 1 only and horizontally annulate. Fruit scarcely fleshy.—The anthers of all Peruvian species, except *C. macropoda* with anthers connate, are reduced to one, 1-celled and annulate.

Inflorescences not borne from the petiole.

Leaves 3–7-parted to the base, the leaflets sessile but narrowed below, usually toothed.....*C. pedata*.

Leaflets not parted to the base or rarely within 5 mm., the divisions not narrowing.

Leaves strongly 3-lobed, the lateral lobes widely spreading; peduncle and calyx glabrous.....*C. brachybotrys*.

Leaves (adult) 5-lobed; peduncle and calyx puberulent.

C. Siemiradzkii.

Leaves not deeply lobed or, if so, the divisions not widely spreading.

Leaves 8–15 cm. wide, shallowly 3-lobed, the lobes broadly ovate.....*C. macropoda*.

Leaves smaller, undulate-lobed, dentate, or entire or, if deeply lobed, the lobes narrow.

Leaves glabrous or essentially so, the pubescence not tomentose.

Leaves mostly more or less lobed.

Lobes of the leaves long-attenuate; fruits (including the spines) 2.5 cm. broad or larger.....*C. Killipii*.

Lobes of the leaves usually very obtuse; fruits about 1 cm. wide.....*C. Mathewsii*.

Leaves mostly subentire.....*C. microcarpa*.

Leaves densely tomentose beneath unless in a variety.

C. cordifolia.

Inflorescence borne from the apex of the petiole. . . . *C. phyllantha*.

Cyclanthera brachbotrys (Poepp. & Endl.) Cogn. Diag. Cucurb. 2: 73. 1877; 837. *Momordica brachybotrys* Poepp. & Endl. Nov. Gen. & Sp. 2: 54. 1838.

Stems glabrous except for the crisp-puberulent nodes; petioles 2–4 cm. long; leaves more or less 3-lobed, the lobes triangular to oblongish, acute, the shorter lateral ones divergent, deep green, with puberulent nerves and a punctate scabrosity above, paler or ash-colored and scabrous beneath, 7–12 cm. long and somewhat narrower, nearly truncate basally or with the basal sinus rounded and 1–1.5 cm. deep and twice as broad; tendrils bifid; staminate peduncles glabrous, filiform, often floriferous to the base, 1–1.5 cm. long; pedicels slightly villous, 1–2 mm. long; calyx tube glabrous, 1.5 mm. broad, the teeth obsolete; corolla yellowish; pistillate flowers subsessile; fruiting peduncle 3–6 cm. long, the strongly gibbous fruits to 3 cm. long, acute, sparsely echinate with flat prickles 3–4 mm. long.—Sometimes the lateral lobes are appendaged by a short lobe directed downward. Variable also in the degree of the obtuse crenation of the leaves, a character which marks the species; leaf lobes extending to the middle, deeply crenate, var. *genuina* Cogn.; leaf lobes short, slightly crenate, var. *Achocchilla* (Spruce) Cogn. (Neg. 27130); leaves deeply lobed, the lobes obscurely crenate, var. *triloba* Cogn.; better marked is the Ecuadorian var. *microphylla* Cogn. with more rigid leaves only half as large. *C. tomentosa* Cogn., if sought here, may be found in a remark under *C. cordifolia*. Negs. 27131, 31070.

Huánuco: Cocho, *Poeppig* 1691, type. Mito, 2,700 meters, on stream bank shrubs, 3336; flowers greenish yellow or white. Huariaca, 2,850 meters, shrubby canyon side, 3100. Huánuco, *Ruiz & Pavón*; var. *triloba*.—Ayacucho: Mountains northeast of Huanta, shrubwood in moist ravine, 3,100 meters, *Weberbauer* 7511, 7511a; flowers greenish. Huanta, 2,800 meters, thickets, *Killip & Smith* 23329; fruit bright green; determination somewhat doubtful.—Arequipa: *Raimondi* (det. Harms).—Cuzco: *Herrera* 2251 (det. Harms). Gucai, Urubamba Valley, 3,000 meters, *Herrera* 1373. Ollantaitambo, 3,000 meters, *Cook & Gilbert* 422. San Miguel, Urubamba Valley, 1,800 meters, *Cook & Gilbert* 963. “Achoche,” “monte achocjcha.”

Cyclanthera cordifolia Cogn. Diag. Cucurb. 2: 76. 1877; 850.

Slender, the deeply sulcate stems, striate petioles 2-4 cm. long, bifid tendrils, and greatly elongate, many-flowered peduncles more or less puberulent to villous; leaves ovate-cordate, short-acuminate, the basal sinus 5-10 mm. deep and more than twice as broad, minutely and remotely spinulose-denticulate, typically tomentose beneath except for the hirsutulous nerves, glabrate and somewhat scabrous above; staminate flowers very numerous, in branched racemes to 15 cm. long; calyx 2-2.5 mm. broad, sparsely villous like the greenish corolla; pistillate flowers twice larger, subsessile; fruit densely and coarsely prickly.—Var. *subnuda* Cogn., op. cit. 851, has subglabrous or scarcely tomentose leaves; var. *angustifolia* Cogn. Bot. Jahrb. 42: 174. 1908, has leaves nearly twice longer than broad. *C. tomentosa* Cogn., 849, similar and perhaps extending into Peru, native of Bolivia, is distinguishable chiefly by its triangular or 3-lobed leaves and few 10-30-flowered racemes, much shorter than the leaves. The related (also Bolivian) *C. montana* Cogn. Medd. Rijks Mus. 19: 69. 1913, has petioles to 9 cm. long and simple tendrils. Negs. 27132, 9067 (var. *subnuda*).

Cajamarca: Cutervo, *Raimondi* (det. Harms, as "cf.")—Ayauccho: Aina, 750-1,000 meters, dense forest, *Killip & Smith 22772* (det. Harms); perianth yellow-green.—Cuzco: Below Pillahuata, 2,000-2,300 meters, in forest, *Pennell 14059* (det. Harms); petals greenish yellow.—Puno: Sandía, *Weberbauer 623*, var. *angustifolia*; 237. Colombia.

Cyclanthera Killipii Standley, sp. nov.

Scandens herbacea, caulibus gracilibus subangulatis glabratiss, ad nodos paullo incrassatis breviter villosulis, internodiis elongatis; folia modica breviter petiolata membranacea, petiolo 6-8 mm. longo sparse villosulo vel fere glabro; lamina 7-9 cm. longa et aequilata profunde triloba, basi cordata, sinu aperto usque 1 cm. alto, in sicco fusca utrinque sat dense conspicue pallido-papillosa, subtus ad nervos sparse villosula, lobis triangulari-oblongis terminali prope basin paullo angustato, omnibus longe sensimque attenuatis, minute remote repando-denticulatis, lamina subtus prope basin glandulis 6-8 crateriformibus depressis onusta; racemi masculi axillares solitarii 3-5 cm. longi laxi multiflori simplices vel furcati, floribus ad nodos fasciculatis, pedicellis gracilibus glabris ad 4 mm. longis; calyx glaber; pedunculi feminei axillares solitarii 1-flori in statu fructifero ad 2 cm. longi; fructus immaturus aculeis inclusis ca. 3 cm. longus atque 2.5 cm. latus glaber ovoideus apice longirostratus,

densissime aculeis crassis longis vestitus.—Peru: Pichis Trail, Dos de Mayo, Dept. Junín, 1,700–1,900 meters, in forest, July, 1929, *E. P. Killip & A. C. Smith 25833* (type in U. S. Nat. Herb.; photo. in Herb. Field Mus.).

Cyclanthera macropoda (Poepp. & Endl.) Cogn. in DC. Monogr. Phan. 3: 853. 1881. *Momordica macropoda* Poepp. & Endl. Nov. Gen. & Sp. 2: 54. pl. 173. 1838. *Elatериopsis macropoda* Cogn. Diag. Cucurb. 2: 84. 1877.

Among Peruvian species well marked by its obvious instead of obsolete calyx teeth, these as much as 2 mm. long, and by its connate anthers; usually also vegetatively by the entire-margined leaves with 3–5 broadly ovate lobes; tendrils trifid; petioles 5–10 cm. long; leaf blades glabrous except for a punctate scabrosity; staminate peduncle 20–30 cm. long, glabrous like the dozen or so pedicels, these 3–6 mm. long; calyx teeth ovate, connivent at the base; pistillate peduncles about 1 cm. long; fruit attenuate to an acute tip, glabrous, 12–15 cm. long.—Compare also *C. explodens* Naud., under *C. Mathewsii*. Neg. 9069.

Huánuco: Tocache, *Poeppig 1966*, type.

Cyclanthera Mathewsii Arn. in Hook. Journ. Bot. 3: 280. 1841; 846.

Delicate, much branching from the base, glabrous or slightly villous except the puberulent peduncles, these (staminate) 2–3 cm. long, with a dozen or more greenish flowers; petioles 2–3 cm. long; leaf blades pale green on both sides and slightly punctate-scabrous, 3–5-lobed, with entire, oblongish lobes strongly constricted at the base, rounded at the tips, the blade 3–5 cm. long and broad, with a basal sinus 3–8 mm. deep; tendrils simple or rarely bifid; pedicels 1–2 mm. long; fruiting peduncles 2–5 mm. long; fruits 12–15 mm. long, subsessile, scarcely gibbous, merely acute, sparsely short-prickly; seeds ovoid, little compressed.—Var. *subintegrifolia* Cogn. has leaves only 5-angled. *C. explodens* Naud., 841, of Ecuador has larger, acutely lobed, denticulate leaves, the fruits echinate with strongly flattened prickles, the seeds compressed. Neg. 27136.

Lima: Amancaes, *Mathews 736*, type. Matucana, *Weberbauer 107*. Near Lima, *Abadía*; *Raimondi*. Obrajillo (*Wilkes Exped.*, det. Gray). Río Chillón near Viscas, 1,800–2,000 meters, open, rocky slopes, *Pennell 14489*, *14485* (det. Harms); corolla deep buff. Atocongo, 250–500 meters, rocky, limestone slopes, *Pennell 14779a* (det. Harms); flowers white. San Gerónimo, 150 meters, stony slope,

5895. Lurín, 60 meters, trailing on sandy lomas along the sea, 5924. Matucana, 2,400 meters, sunny, stony places, 309, 2931.—Moquehua: Mount Estuquiña, 2,000 meters, stony places, *Weberbauer* 7450; flowers greenish.

Cyclanthera microcarpa Cogn. Diag. Cucurb. 2: 75. 1877; 847.

Allied and in general similar to *C. Mathewsii* but with ovate to oblong, entire leaves, rounded or truncate at the base, acute or acuminate; pedicels 3–4 mm. long; fruits very oblique at the rostrate tip, subglobose-gibbous, 5–7 mm. long, the seeds compressed. Negs. 27137, 27138.

Puno: Sandía, *Weberbauer* 832 (det. Cogniaux).—Lima: Road to La Oroya, *Weberbauer* 86 (det. Cogniaux).—Huánuco: Ambo, 3175 (det. Harms). Mito, 3279 (det. Harms). Huacachi, sunny bamboo thicket, flowers deep yellow; leaves oblong; var. *oblongifolia* Cogn. in herb., 4074 (det. Harms). Bolivia.

Cyclanthera pedata (L.) Schrad. Ind. Sem. Hort. Goett. 1831; Linnaea 8: Litt. 23. 1833; 825. *Momordica pedata* L. Sp. Pl. 1009. 1753.

The only Peruvian species with digitate leaves, the 5–7 leaflets sessile or subsessile, lance-oblong, attenuate to the base, the larger terminal ones 7–15 cm. long and about a third as wide; staminate flowers paniculate; calyx teeth setaceous, much shorter than the corolla; fruit sparsely echinate or smooth, rostrate.—*C. tenuisepala* Cogn., 825, has leaflets half as large, flowers in short racemes, calyx teeth longer than the corolla, and fruits extraordinarily echinate; accredited to Peru by Cogniaux, the locality cited by him is rather in Ecuador. The typical form has a large, smooth, edible fruit; cultivated for the fruits in Cuzco (Herrera). Illustrated, Garden 12: 617.

Huánuco: Ruiz & Pavón. Pampayacu and Cochero, *Poeppig* 1612. Huánuco, 2,100 meters, on weeds along ditch, 3495; fruit with a cucumber odor.—Cajamarca: Casas, *Raimondi* (det. Harms).—Río Acre: *Ule* 9879 (var. *edulis*, det. Cogniaux).—Tumbes: Hacienda La Choza, 300 meters, deciduous bushwood, *Weberbauer* 7728; flowers greenish. Plain southeast of Hacienda La Choza, 100–200 meters, *Weberbauer* 7707.—Piura: El Tablazo northeast of Talara, *Haught* F134.—San Martín: Tarapoto, *Williams* 5963. San Roque, 1,400 meters, *Williams* 7624.—Without locality: *Née*.—Ayacucho: Aina, 750–1,000 meters, in clearing, *Killip & Smith* 22820; corolla white.—Loreto: Mishuyacu, 100 meters, in clearing,

Klug 247; flowers white, 945. Puerto Arturo, 200 meters, *Williams* 5247. Bolivia to Mexico. "Caigua," "achoccha," "paigua cimarona," "caizus," "caihua."

Cyclanthera phyllantha Harms, Notizbl. Bot. Gard. Berlin 11: 776. 1933.

A climbing herb, well marked by the short panicles of greenish flowers, borne from the tips of the petioles; tendrils bifid; petioles 1-2 cm. long, more or less pilose like the stems and young leaves, or glabrate; leaves deeply cordate, with a rounded but narrow sinus, angulately 3-5-lobed, acuminate, remotely short-denticulate, 12-13 cm. long, 8-10 cm. wide; panicle about 1.5 cm. long; many-flowered; pedicels 3-4 mm. long, or some of them shorter; corolla glabrous, 3-4 mm. broad; anthers circuliform.

Cuzco: Lares Valley, near Calca, in evergreen shrub, 2,200 meters, *Weberbauer* 7919, type.

Cyclanthera Siemiradzkii Szysz. Diss. Class. Math. Phys. Acad. Litt. Cracov. 29: 231 (reprint 17). 1894 (as to title page, but often cited as 1895).

Stems slender, angulate-sulcate, glabrous, slightly pubescent at the nodes; petioles 6-10 cm. long; adult leaves finely puncticulate-scabrous and on the nerves of both sides pubescent, 18 cm. long, 17 cm. wide, more or less deeply 5-lobed (the smaller, younger ones 2-3-lobed), the oblong-lanceolate lobes acute, mucronulate, somewhat crenate, the middle one to 15 cm. long, 4 cm. wide, the lateral to 8 cm. long, 3 cm. wide; basal sinus subrotund; tendrils bifid; staminate peduncle 5-6 cm. long, pubescent, 30-40-flowered, often to the base; pedicels often branched; calyx tube pubescent above, 1.5-2 mm. long, the teeth minute or obsolete; corolla yellowish, the lobes triangular; fruiting peduncle robust, puberulent, the fruit gibbous, strongly compressed, with many aculeae.—"Near *C. brachybotrys*."

Peru: Without locality, but probably Cajamarca (*Jelski* 314).

18. ECHINOCYSTIS Torr. & Gray

Closely allied to *Cyclanthera* but the stamens 3, with free or connate anthers, their cells often flexuous. Fruit operculate or dehiscent by 1-2 pores or irregularly rupturing, not gibbous.—The section *Echinopepon* (Naud.) Cogn., containing the Peruvian species, with fruit 1-2-pored or operculate, is apparently accepted by Harms as a genus, the species then requiring fruit for determination.

Echinocystis araneosa Griseb. Abh. Ges. Wiss. Goett. 19: 135. 1879; 810. *Echinopepon araneosa* Cogn. ex Harms, Repert. Sp. Nov. 19: 171. 1923.

Stems deeply sulcate, with the elongate petioles and staminate peduncles long-villous with glistening, spreading trichomes; leaves roundish, cordate, angulately 5-lobed, about 15 cm. long and broad, sparsely pubescent above, more or less densely short-hirsutulous beneath; flowers about a dozen, white, 5–8 mm. long, the slightly shorter calyx silky-villous or tomentose, its teeth 3–4 mm. long; fruiting peduncle 4–6 mm. long; fruit 4–5 cm. long, lanate like the very unequal prickles, the larger prickles 3 cm. long or more, the smaller ones 3–10 mm. long.—*E. muricata* Cogn., known from as near as Guayaquil in the Ruiz and Pavón collections, has more or less 3–5-lobed leaves and sparsely pilose fruits. Neg. 9053.

Piura: Right valley of Río Quirós, Prov. Ayavaca, 1,400 meters, *Weberbauer 6395* (det. Harms).—Tumbes: Mountains southeast of Hacienda La Choza, *Weberbauer 7726* (det. Harms as *Echinopepon*). Bolivia, Argentina.

19. CAYAPONIA Manso

Reference: Cogniaux in DC. Monogr. Phan. 3: 738–797. 1881.

Perennial herbs, usually climbing, with generally palmate-lobed leaves, the flowers variously arranged, only exceptionally dioecious. Calyx and corolla lobes 5, the tube of the former rarely subcylindric, of the latter campanulate or rotate. Stamens 3; filaments free; anthers ordinarily coherent, one of them 1-celled, the cells, unless at the tip, triplicate. Staminodia minute in the pistillate flower. Ovary 3-celled or by abortion 1-celled. Stigmas 3, dilated, reflexed. Fruit globose or ovoid, indehiscent, 1–12-seeded, the erect seeds compressed.—Kuntze, Rev. Gen. 1: 255. 1891, employs the name *Arkezostis* Raf.; his names are not cited here, this reference sufficing. The species are separated with difficulty. The character of the glands used by Cogniaux as important is apparently to be taken with caution, since authoritatively named material of *C. citrullifolia* sometimes is slightly glandular; therefore this character has been used as a secondary one in the following key.

Leaves glabrous beneath or essentially so.

Leaves 3-foliolate.....*C. amazonica*.

Leaves simple.

Calyx tube about 2 cm. long; leaves eglandular. .*C. macrocalyx*.

Calyx tube much shorter; leaves with a few sessile glands beneath near the petiole.

Leaves scabrous above, 3-lobed.....*C. glandulosa*.

Leaves not at all scabrous, not lobed.....*C. oppositifolia*.

Leaves at least somewhat pubescent beneath and definitely so.

Calyces forming dense, long-setose, more or less aggregated heads.
C. capitata.

Calyces not so arranged nor long-setose.

Leaves lightly pubescent beneath, reticulate, densely white-tuberculate-scabrous above; ovary by abortion 1-celled, the fruit 1-seeded, except in *C. citrullifolia*.

Basal sinus of the leaves open, widely spread, the leaf base decurrent.

Sepals 5-6 mm. long.....*C. Tessmannii*.

Sepals scarcely 3 mm. long.....*C. citrullifolia*.

Basal sinus nearly closed, to 1 cm. broad.

Leaves 3-lobed.....*C. Ruizii*.

Leaves 5-lobed.....*C. peruviana*.

Leaves usually densely pubescent beneath, often not markedly reticulate or not tuberculate; ovary 3-celled, the fruit 6-12-seeded.

Leaves not lobate.....*C. Smithii*.

Leaves lobate.

Calyx obconic, the broad lobes 3-3.5 mm. long; leaves eglandular.

Leaf reticulation prominent; calyx villous within.

C. citrullifolia.

Leaf nervation obscure; calyx glabrate within.

C. tomentosa.

Calyx campanulate, the lobes only 1-2 mm. long; leaves glandular beneath near the petiole.....*C. Poeppigii*.

Cayaponia amazonica (Poepp. & Endl.) Cogn. in DC. Monogr. Phan. 3: 797. 1881. *Sechium amazonicum* Poepp. & Endl. Nov. Gen. & Sp. 2: 57. 1838.

Plants large and coarse, sparsely pubescent or glabrate; leaves large, 3-foliolate, the leaflets coriaceous, acute or acuminate, sessile, remotely denticulate or almost entire, with conspicuous veins;

flowers greenish white or white and lilac, large, 4–5 cm. long, pubescent or tomentose; fruit described as being as large as a medium-sized apple, villous.

Loreto: Río Napo near Mazán, 110 meters, *Mexia* 6464; climbing over tall trees; fruit pale green, elliptic, as large as a small lemon. Mishuyacu, 100 meters, in forest, *Klug* 932. Brazil.

Cayaponia capitata Cogn. ex Harms, Repert. Sp. Nov. 22: 340. 1926.

Stems sulcate, sparsely pubescent with spreading hairs; petioles densely villous, 6–9 cm. long; leaves more or less hirsutulous above, densely short-villous beneath, as much as 20 cm. in length and width, deeply 3-lobed, even sometimes to the base, the entire lobes short-acuminate; basal leaf sinus subrectangular, 2–3 cm. deep and broad; tendrils robust, deeply bifid; staminate flowers in sessile, many-flowered heads; calyx tube long-setose, nearly cylindric, rounded at the base, 2 cm. long, equaled by the linear-lanceolate sepals; petals 5–6 mm. long; stamens glabrous, 7 mm. long, the anthers coherent.—The two outer leaf lobes may sometimes bear a lateral lobe half as long. The leaf pubescence above is scabrous, beneath softly villous. The species is allied by the author to *C. podantha* Cogn., 753, of Paraguay, with a conic calyx and solitary or few flowers.

Río Acre: Seringal Estrella, *Ule* 9869, type.

Cayaponia citrullifolia (Griseb.) Cogn. in Griseb. Abh. Ges. Wiss. Goett. 24: 135. 1879; 748. *Antagonia citrullifolia* Griseb. op. cit. 19: 145. 1874.

Stems stout, sulcate, like the petioles (about 5 cm. long) and leaves above scabrous-pubescent; leaves nearly orbicular, ovate at the deeply or widely cordate base, more than 10 cm. broad, pale green above, gray-tomentose beneath or glabrate in age, more or less 3–5-lobed; tendrils bifid; staminate peduncles 4–10 cm. long, densely short-villous like the broadly campanulate calyx tube, this glabrate within, more than 1 cm. long, the erect lobes to 3 mm. long, at least twice as broad; corolla lobes to 2 cm. long, tomentose; filaments filiform, villous below; pistillate flowers smaller, the calyx tube 4–5 mm. long; ovary 3-celled, maturing 6–12 seeds.—Var. *breviloba* Griseb. ex Cogn. has merely 3–5-lobed and entire instead of palmately parted leaves, the staminate flowers racemose instead of mostly solitary. Petals green with white edges (Weberbauer). Neg. 9028.

Piura: Hacienda San Antonio, 1,000 meters, *Weberbauer 6017*; the var. (det. Harms).—Cuzco: Machupicchu, *Soukup 150*.—Junín: La Merced, 600 meters, on sunny brush along river, *5490* (det. Harms). Bolivia, Argentina.

Cayaponia glandulosa (Poepp. & Endl.) Cogn. in DC. Monogr. Phan. 3: 755. 1881. *Bryonia glandulosa* Poepp. & Endl. Nov. Gen. & Sp. 2: 56. *pl. 175*. 1838.

Similar to *C. Poeppigii*, but the leaves glabrous beneath, the tendrils glabrous and simple; calyx lobes ovate, subequal to the tube, this rounded at the base, purplish or violet like the fruit, which attains a length of more than 2 cm.—The stems and the black, asperous, fleshy roots are more or less suffused with violet within (Poeppig). The flowers are green (Tessmann).

Loreto: Yurimaguas, *Poeppig 2211*, type. Mouth of Río Santiago, *Tessmann 4271* (det. Harms).

Cayaponia macrocalyx Harms, Notizbl. Bot. Gart. Berlin 9: 994. 1926.

Glabrous except for the large flowers, these with somewhat villous, broadly campanulate calyx tube, to 3 cm. long and nearly as wide, the deltoid lobes 3 mm. long, and with a villous-velutinous corolla 1–2 cm. high or more; petioles 4–5 cm. long; leaves about ovate, cuneately narrowed to the petiole, obtuse or acute, entire or shallowly lobed, chartaceous, glabrous or glabrate, white-puncticulate above, sometimes about 10 cm. long and broad; tendrils simple; staminate peduncles axillary, 3–6 cm. long or longer; filaments 3, short, lanate at the base; stamen column about 12 mm. long.—Described from imperfect material and not placed systematically. A liana, the stems 5 cm. thick, 10 meters long; calyx green; corolla whitish without, yellowish within (Tessmann). Large-flowered species from Amazonian Brazil that might be sought here include *C. coriacea* Cogn., 761, and *C. Bonplandii* Cogn., 796, the former with bifid tendrils and filiform calyx teeth, the later with trifid tendrils and trifoliolate leaves. Neg. 9037.

Loreto: Mouth of Río Santiago, Upper Marañón, by a brook in flood-free woods, 160 meters, *Tessmann 4445*, type.

Cayaponia oppositifolia Harms, Notizbl. Bot. Gart. Berlin 9: 994. 1926.

Apparently unique by its opposite, binate or ternate leaves, these entire, glabrous above, obscurely scabrous beneath, acuminate,

obtuse or narrowed at the base, 9–18 cm. long, 4–8 cm. wide, on petioles 2–3 cm. long; staminate flowers in axillary glomerules, on pedicels to 2.5 cm. long; calyx tube 3–4 cm. long, 1.5–2 cm. wide, the nearly setaceous teeth 2–3 mm. long; corolla almost 2 cm. high; filaments 3, somewhat lanate, very short.—Not compared by the author. *C. amazonica* (P. & E.) Cogn., 797, has leaves almost trifoliolate and solitary flowers. The collector noted the plant as a liana of high woods, the calyx green, the corolla without green at the middle, at the edges whitish, pale green or almost white within. Neg. 9038.

Loreto: Mouth of Río Santiago on the Marañón, 160 meters, *Tessmann* 4503; and 4869 at Puerto Meléndez (type number not indicated).

Cayaponia peruviana (Poepp. & Endl.) Cogn. in DC. Monogr. Phan. 3: 795. 1881. *Sechium peruvianum* Poepp. & Endl. Nov. Gen. & Sp. 2: 56. pl. 176. 1838.

Stems deeply striate-sulcate, lightly scabrous-pubescent; petioles stout, striate, 5–7 cm. long; leaf blades deep green above, finely white-punctate-scabrous, paler and sparsely puberulent beneath on the reticulate veins, to 15 cm. long and broad, 5-parted nearly to the deeply cordate base; tendrils bifid; staminate flowers densely tomentose, their lobes 5–6 mm. long, the calyx tube more than 2 cm. long, the flowers usually in short racemes of 3–5, the stout, villous-tomentose peduncles as long as 10 cm.; pistillate flowers solitary.—Stems to 60 meters long, tortuous; fruits the size of a small apple, globular, coriaceous, smooth, green, with white, spongy pulp, the seed subglobose, somewhat compressed (Poeppig). The ovary is 1-celled and 1-ovuled.

Huánuco: Pampayacu, *Poeppig* 1506, type.

Cayaponia Poeppigii Cogn. in DC. Monogr. Phan. 3: 756. 1881.

Slender, slightly pubescent, especially on the leaves beneath, these scabrous above, 3-lobed to about the middle, or the upper more nearly entire, 10–20 cm. long and broad, attenuate to the petiole at the scarcely even subcordate base, the petiole 4–7 cm. long; tendrils pubescent, stout, bifid; flowers often several in usually elongate, pubescent racemes; staminate calyx about 1 cm. long, the lobes much shorter, the tube acute at the base; corolla lobes 13 mm. long; filaments 3 mm. long, the anthers coherent; ovary 3-celled; fruit smooth, 1–1.5 cm. long, 6-seeded.—The Ecuadorean *C. Andreana* Cogn., 757, has less divided leaves, simple tendrils, and

free anthers. Both species are marked by the campanulate calyx with short teeth 2–3 mm. long. Neg. 9043.

Huánuco: Cochero, *Poeppig* 1674, type.—San Martín: Tarapoto, *Ule* 6647; *Spruce* 4545 (both det. Cogniaux).—Loreto: Camani, *Tessmann* 3341 (det. Harms). Ranging to Colombia.

Cayaponia psederifolia Standl., sp. nov.

Scandens, caulibus gracilibus striatis glabris vel glabratis, internodiis elongatis; folia modica crassiuscula ca. 2.5 cm. longe petiolata, petiolo glabro vel glabrato, lamina 3-foliolata sed ob foliola lateralia bipartita spurie 5-foliolata; foliola coriacea oblanceolato-oblonga vel oblonga 5.5–13 cm. longa 2.5–4.5 cm. lata acuta vel breviter acuminata, basin versus vulgo attenuata et sessilia vel brevissime petiolulata, remote obscure repando-denticulata, foliolis lateralibus interdum basi latere exteriore subrotundatis vel obscure subauriculatis, utrinque glabra, opaca costa nervisque supra prominulis subtus prominentibus, venulis subtus prominentibus et arctissime reticulatis; flores masculi in axillis fasciculati graciliter ad 2.5 cm. longe pedicellati, pedicellis ut videtur glabris; calyx extus ubique dense minute glanduloso-scaberulus, tubo late cylindraceo usque 3 cm. longo basi late rotundato vel subtruncato, lobis 5 e basi triangulari subulato-acuminatis ad 3 mm. longis; corolla viridescens ca. 1 cm. longa extus dense minute glanduloso-scaberula, lobis triangularibus acutis tubo duplo longioribus.

San Martín: Zepelacio, near Moyobamba, 1,200–1,600 meters, December, 1933, *Klug* 3475 (type in Herb. Field Mus.).

From all other Peruvian species this differs in its apparently 5-foliolate leaves. It is related, probably, to *C. coriacea* Cogn., which might well be expected to occur in Peru. I have seen no authentic material of *C. coriacea*, but if Cogniaux's description is accurate, the present plant is quite distinct.

Cayaponia Ruizii Cogn. in DC. Monogr. Phan. 3: 794. 1881.

Apparently allied to *C. peruviana*, which it resembles in general character, but the flowers unknown; petioles 3 cm. long; leaf blades rigid, densely white-tuberculate-scabrous above, the deeply cordate sinus nearly closed or to 1 cm. wide, the blades 3-lobed, the lateral lobes spreading; fruiting peduncles axillary, very stout, densely long-villous, 2.5 cm. long; fruit smooth, lustrous, olivaceous, large. Neg. 9046.

Huánuco: Vitoc, *Ruiz & Pavón*, type.

Cayaponia Smithii Standley, sp. nov.

Scandens, herbacea, caulibus gracilibus sparse vel subdense villosis, internodiis elongatis sulcatis; folia majuscula breviter petiolata subcoriacea, petiolo 2–3 cm. longo ut videtur recurvo densissime brunneo-villoso; lamina late ovato-cordata ca. 16 cm. longa atque 11 cm. lata, apice obtusa et breviter cuspidato-acuminata, basi profunde cordata, sinu aperto sed non lato ca. 3 cm. alto, remote repando-denticulata, supra in sicco olivacea, sparse breviter pilosa vel fere glabra, ad costam dense breviter villosa, nervis prominentibus, venulis arctissime reticulatis prominulis, subtus fere concolor ubique sat dense hispidula, basi trinervia, nervis prominentibus, venis quoque prominentibus et arcte reticulatis; flores feminei axillares solitarii, pedunculo fructifero gracili ca. 7.5 cm. longo sparse breviter villosus; fructus globosus sparse villosus ca. 2.5 cm. diam. apice late rotundatus.

Loreto: Río Marañón Valley, Río Morona, 150 meters, in dense forest, in 1929, *E. P. Killip & A. C. Smith 29162* (type in U. S. Nat. Herb.; photo. in Herb. Field Mus.).

It is quite possible that this plant is referable to some genus other than *Cayaponia*.

Cayaponia Tessmannii Harms, Notizbl. Bot. Gart. Berlin 9: 995. 1926.

Very similar vegetatively to the imperfectly known *C. Ruizii*, but the leaves 5-lobed; calyx tube urceolate-campanulate, with scattered, hirsute pubescence without, 3 cm. long or longer, 2.5 cm. broad; calyx teeth broadly lanceolate, 5–6 mm. long; corolla sparsely hirsute without, nearly 2 cm. long; filaments densely villous, about 8 mm. long, the anther column 13 mm. long.—Flowers yellow, greenish below, the calyx green (Tessmann). Neg. 9049.

Loreto: Mouth of Río Apaga, 145 meters, *Tessmann 4814*, type.—San Martín: Juanjuí, 400 meters, in forest, *Klug 3913*; flowers greenish yellow.

Cayaponia tomentosa Cogn. in DC. Monogr. Phan. 3: 747. 1881.

Related to *C. citrullifolia*, from which it differs especially in having the calyx less pubescent without but much more densely pubescent within and smaller, the tube to 7 mm. long, the ovate lobes 2–2.5 mm. long; filaments and anthers subequal.—The leaves are softly pubescent beneath; the calyx lobes of the Madrid specimen are as much as 3.5 mm. long. Neg. 9051.

Huánuco: Vitoc, *Ruiz & Pavón*, type. Casapí (*Mathews* 2046).—Amazonas: Chachapoyas, *Mathews*.—Without locality: *Ruiz & Pavón* 26-9.—Loreto: Iquitos, 120 meters, *Williams* 8118 (det. Harms).—San Martín: Tarapoto, *Williams* 6558, 6046. San Roque, 1,400 meters, *Williams* 7627. Zepelacio, 1,200-1,600 meters, in forest, *Klug* 3479. Ecuador.

20. SELYSIA Cogn.

High-climbing vines with simple or bifid tendrils, 3-lobed or undivided leaves, and monoecious flowers, the staminate solitary or fascicled, the pistillate solitary. Sepals 5, minute, the short calyx tube broadly cupulate. Corolla campanulate. Stamens 3, free, with linear filaments; anthers suborbicular, one usually 1-celled, the cells replicate within, curved above, the broad connective not produced. Fruit baccate, indehiscent, 3-celled, the 6 seeds erect.

Selysia prunifera (Poepp. & Endl.) Cogn. in DC. Monogr. Phan. 3: 736. 1881. *Melothria prunifera* Poepp. & Endl. Nov. Gen. & Sp. 2: 55. pl. 174. 1838.

Minutely pubescent or glabrate, the cordate, slightly 3-lobed leaves puberulent on the nerves above and beneath on the reticulate veins; leaf sinus truncate at the petiole attachment, curved at each end by the incurved, hook-like basal leaf lobes, 2-3 cm. wide, 3-4 cm. deep, the blade about 15 cm. long and wide; tendrils bifid; staminate flowers geminate or ternate, the villous peduncle 1-3 cm. long; calyx more pubescent within, 4 mm. long, nearly twice as broad, the teeth 1 mm. high; corolla white, tomentose within, the lanceolate lobes 15 mm. long; pistillate peduncle to 8 cm. long, the lustrous, smooth fruit becoming 4 cm. long.—The Colombian species *S. cordata* Cogn. has entire, scarcely cordate leaves, simple tendrils, and sepals 5-6 mm. long.

Loreto: Mainas at Yurimaguas, *Poeppig*, type. Santa Rosa, 135 meters, in dense forest, *Killip & Smith* 28846; buds yellowish green. Yurimaguas, 135 meters, in forest, *Killip & Smith* 28315, fruit red; in forest, *Williams* 4580. Fortaleza, 200 meters, in forest, *Williams* 4256.

21. CUCUMIS L.

Plants annual or perennial, usually prostrate, commonly hispid or scaberulous; leaves angulate, dentate, or palmately lobate; flowers monoecious, usually small and yellow; staminate flowers fasciculate or rarely solitary, the receptacle campanulate or turbi-

nate, the corolla rotate or subcampanulate, the segments acute; stamens 3, free, the anthers oblong; pistillate flowers solitary; fruit fleshy and indehiscent, many-seeded.—To this genus belong the cucumber, *C. sativus* L., and the muskmelon or canteloupe, *C. Melo* L.

Leaf blades deeply lobate; fruit long-pedunculate, sparsely short-spiny.....*C. Anguria*.

Leaf blades shallowly or not at all lobate; fruit short-pedunculate, densely covered with long, soft spines.....*C. dipsaceus*.

Cucumis Anguria L. Sp. Pl. 1011. 1753.

Plants annual, the prostrate stems hispid; leaves long-petiolate, the blades 5–10 cm. long, deeply 5-lobate, the segments rounded or obtuse at the apex, rough-hispid; corolla yellow, 1 cm. broad; fruit ovoid, as large as a hen's egg, covered with scattered, short, stout spines.—Illustrated, Bot. Mag. *pl.* 5817; Contr. U. S. Nat. Herb. 8: *pl.* 33.

Loreto: Pinto-cocha, *Williams* 1280. Caballo-cocha, *Williams* 2496. Mishuyacu, 100 meters, *Klug* 827.—San Martín: Morales, edge of forest, *Williams* 5695. Juanjuí, 400–800 meters, river bank, *Klug* 4359. Texas to Brazil. "Mashishi."

Cucumis dipsaceus Ehrenb. in Spach, Hist. Nat. Phan. 6: 211. 1838.

Plants annual, prostrate, covered with an abundant pubescence of rather thick, rough hairs; leaves long-petiolate, the blades semi-orbicular or reniform-cordate, rounded at the apex, 5-nerved, usually simple but sometimes rather deeply lobate, 5–10 cm. long and wide; corolla of the staminate flower yellow, villous, 8–9 mm. long; fruit pale yellowish, ovoid-cylindric, 3–5 cm. long, covered with soft spines 5–7 mm. long.

Lima: Lima, roadsides, 150 meters, 55.—Piura: Talara, *Haught* F94, 106. A native of Africa, occasionally introduced in America. "Jabonilla," "friega-mata."

The first vernacular name cited is derived from the fact that the fruit makes a copious lather when rubbed in water.

22. **SECHIUM** P. Br. Chayote

The genus consists of a single species.

Sechium edule Swartz, Fl. Ind. Occ. 3: 1150. 1800.

Plants scandent, perennial from large, tuberous roots, glabrous or nearly so; leaves long-petiolate, large, somewhat scabrous, the

blades deeply cordate at the base, angulate or shallowly lobate, the lobes entire or remotely denticulate; staminate flowers racemose, on greatly elongate peduncles, the flowers fasciculate along the rachis; corolla greenish, 12–17 mm. wide, deeply lobate; fruit almost as large as a pear, green, 5-sulcate, smooth or covered with spine-like tubercles.

Huánuco: Pampayacu, escaped and growing over trees about dwellings, 1,050 meters, 5104. Widely distributed in cultivation in tropical America; an American plant, but its original habitat uncertain. "Gayota."

The chayote is much grown in tropical America for its large, 1-seeded fruits, which are a popular vegetable in many regions, being eaten when cooked. The young shoots are sometimes cooked and eaten, and the large roots are employed for preparing sweetmeats.

23. LAGENARIA Ser.

The genus consists of a single species.

Lagenaria siceraria (Mol.) Standl. Field Mus. Bot. 3: 435. 1930. *Cucurbita Lagenaria* L. Sp. Pl. 1010. 1753. *C. siceraria* Mol. Sagg. Chil. 133. 1782. *L. vulgaris* Ser. Mém. Soc. Genève 3, pt. 1: 25. 1825. *L. leucantha* Rusby, Mem. Torrey Club 6: 43. 1896.

A large, essentially annual vine, softly pubescent throughout; leaves large, long-petiolate, the blades cordate-rounded, angulate or somewhat lobate, rounded to acuminate at the apex; receptacle of the staminate flower 2–3 cm. long, the petals white, crispate, 3–4 cm. long; ovary dense villous; fruits very variable in form, with a thick, hard shell.

Cuzco: Valle de San Miguel, 2,200 meters, *Herrera 1993*. Urubamba Valley, 1,800 meters, *Cook & Gilbert 877*. Probably native of tropical Africa and Asia, but naturalized in many parts of America.

The large, hard fruits are much used in tropical America for making kitchen utensils, especially dippers and large spoons. The young, tender fruits often are cooked and eaten as a vegetable.

CAMPANULACEAE. Bellflower Family

By Franz Elfried Wimmer, Vienna

References: A. DeCandolle, Monographie des Campanulacées, 1830; Engler & Prantl. Nat. Pflanzenfam. IV. 5: 40–70. 1889.

Annual or perennial herbs or shrubs, rarely arborescent, often with milky juice. Leaves alternate, rarely opposite, without stipules. Flowers perfect or rarely unisexual, solitary or arranged in panicles,

racemes, or spikes, regular or symmetric, mostly 5-lobed, rarely more or less articulate. Lobes of the calyx distinct. Corolla gamopetalous, bell- or funnel-shaped or tubular, rarely with distinct petals, its tube entire or deeply cleft on one side, the lobes valvate in bud. Stamens as many as the corolla lobes, adnate to the corolla tube or free from it (epipetalous or epigynous), distinct or connate. Anthers free from each other or connate. Ovary inferior (very rarely superior), of 2-5 united carpels, single, 2-5-celled, or the cells rarely more or 1. Style 1, the stigma lobes as many as the ovary cells. Ovules mostly numerous, anatropous, on a central placenta, very rarely on parietal placentae. Fruit a dehiscent capsule or a berry. Seeds small, with a straight embryo in fleshy endosperm.

Very few Campanulaceae are found in Peru except the subfamily Lobelioideae, that is distributed with many species particularly in the alpine region of the Andes. Otherwise the family is chiefly in the temperate zone.

Flowers actinomorphic, the corolla bell-, funnel-, or wheel-shaped, mostly 5-lobed; anthers distinct . . I. Subfam. *Campanuloideae*.

Ovary 3-5- or rarely 2-celled, above rather plane; capsule opening by lateral pores.....1. *Campanulinae*.

Ovary mostly 3-5- or rarely 2-celled, at the summit mostly conically elongate; capsule dehiscent at the apex by 2-5 valves.....2. *Wahlenberginae*.

Ovary only 2-celled; capsule dehiscent by a broad operculum; flowers in a dense, continuous spike.....*Sphenoclea*.

Flowers zygomorphic, the corolla tubular, with 5 unequal lobes, often 2-lipped; anthers always connate in a cylindric tube.

II. Subfam. *Lobelioideae*.

Ovary at the top rather plane; fruit a berry.....1. *Bacciferae*.

Ovary at the apex conical; fruit a capsule.....2. *Capsuliferae*.

Capsule dehiscent by 2 valves at the top; corolla distinctly 2-lipped, the 2 upper lobes mostly smaller..1. *Lobelinae*.

Capsule opening by an operculum at the apex; corolla limb unequally 5-lobed, the upper lobes longer than the lower. Dwarf, caespitose plants of the uppermost region.....2. *Lysipominae*.

1. *Campanuloideae-Campanulinae*

Herbs, rarely shrubby plants. Filaments free from the corolla. Anthers separate or sometimes attached. Style always with col-

lecting hairs. Ovary inferior; placentae central.—In Peru only the following genus.

1. SPECULARIA (Heist.) Fabr.

Annual herbs with alternate leaves. Flowers sessile or very nearly so, axillary and 2-bracted or the upper paniced, the earlier smaller and cleistogamous. Calyx 5- or 3-4-lobed. Corolla rotate, 5-lobed, blue or purplish. Stamens 5, distinct, the flat filaments shorter than the 5 free anthers. Stigma usually 3-lobed. Ovary 3-celled, rarely 2-4-celled; ovules numerous. Capsule slender-cylindric or prismatic, opening by 3 lateral valves. Seeds ovoid, oblong, or lenticular.—About 10 species, natives of the northern hemisphere, one extending into South America.

Specularia biflora (R. & P.) Fisch. & Mey. Ind. Sem. Hort. Petrop. 1: 17. 1835. *Campanula biflora* R. & P. Fl. 2: 55. pl. 200, f. b. 1799. *Legouzia biflora* Britton, Mem. Torrey Club 5: 309. 1894; Britt. & Brown, Ill. Fl. 3: 256. f. 1898. *Specularia perfoliata* A. DC. Monogr. Camp. 351. 1830, p. p.

An erect herb, simple or ramose from near the base, the stems hispid on the angles, 10–35 cm. high; leaves sessile, broadly ovate to oblong, 6–20 mm. long, rounded to acute at the apex, crenate with a few teeth or nearly entire, glabrous or sparsely hispid beneath; flowers in 2's or solitary in the axils; hypanthium obconic-cylindric, short-hispid or glabrous, with 3–5 ovate-lanceolate, cuspidate, entire sepals 2–5 mm. long; corolla blue, 5-parted, 5–7 mm. long, the lobes oblong; capsule oblong-cylindric, 4–6 mm. long, 3-locular, opening by valves close under the calyx lobes. Neg. 29455.

Lima: Provinces of Cercado, Canta, and Chancai, in sandy hills (*Ruiz & Pavón*).—Without locality, *Dombey* 435(?). Elsewhere distributed from Patagonia, 41° S. Lat., to Virginia.

From the very similar *Specularia perfoliata* (L.) A. DC. this differs by the clasping leaves, more flowers in the axils of the leaves, and the capsule, in which the 3 pores are placed at about the middle.

2. Campanuloideae-Wahlenberginae

Herbs or suffruticose plants. Leaves alternate or opposite. Corolla mostly campanulate, more rarely funnel-shaped or eleutheropetalous. Filaments mostly free and dilated to the base. Anthers usually free. Style with collecting hairs or with viscid glands. Ovary mostly 3–5-celled, rarely 2-celled; ovules on a central

placenta, sometimes superior.—Occurring especially in the southern hemisphere of the Old World. In Peru only the following genus.

2. WAHLENBERGIA Schrad.

Calyx with 5–3 lobes. Corolla campanulate or tubular, more or less deeply 5–3-lobed. Stamens 5–3, distinct. Style pilose, especially in the upper part, with 5–2 narrow lobes. Ovary inferior or half-inferior, 5–2-locular. Capsule dehiscent at the summit by as many valves as cells.—Abundant particularly in South Africa, but there are only 12 species in South America, 4 of which have been found in Peru.

Plants prostrate; leaves spatulate-oblong; capsule with 3 valves.

Corolla 5 mm. long; leaves inconspicuously denticulate to the base; stems mostly sparsely pubescent.....4. *W. peruviana*.

Corolla 9 mm. long; leaves and sepals distinctly denticulate; plant glabrous.....5. *W. urcosensis*.

Plants ascending to erect.

Leaves opposite, only a few of the uppermost leaves alternate; hypanthium hemispheric; stigma 3-lobate...2. *W. globularis*.

All leaves alternate; hypanthium obconic; stigma 2-lobate.

Leaves linear.....3. *W. linarioides*.

Leaves lanceolate to elliptic.....1. *W. arida*.

1. *Wahlenbergia arida* (HBK.) Griseb. Goett. Abh. 19: 200. 1874. *Campanula arida* HBK. Nov. Gen. & Sp. 3: 301. 1819. *W. linarioides* var. *arida* A. DC. Monogr. Camp. 158. 1830. *W. calycina* Lechler, Pl. Peruv. No. 1816 (nomen!).

Stem scabrous; leaves lanceolate; calyx lobes more than twice shorter than the ovary, 4–5 times shorter than the capsule and as long as the 5-parted corolla, this 5 mm. long; capsule cylindric, attenuate at the base, 12–17 mm. long.—*W. calycina* differs only by the leaves, which are elliptic or elliptic-oblong, and half as long or shorter. Description according to Grisebach.

Peru: *Lechler 1816* (type of *W. calycina* Schlecht.). Ecuador; Bolivia.

2. *Wahlenbergia globularis* E. Wimm., sp. nov.

Caules ramosi, circiter 30 cm. alti, graciles, striati, inferne defoliati, reverse strigulosi, superne glabrati; folia opposita, superne nonnullis alternantibus, lanceolato-linearia, 10 mm. longa et vix 2 mm. lata, obtusiuscula, basi angustata et breviter petiolata vel

sessilia, margine plerumque 3 denticulis antrorsum versus, supra glabra et nitentia, subtus parce strigosa; rami et ramuli superne nudi, uni- vel pauciflori; pedicelli glabri, 25–30 mm. longi, bractea foliacea multo longiores; hypanthium hemisphericum, glabrum, 3 mm. fere longum et 4 mm. latum; lobi calycini anguste triangulares, obtusiusculi, basin versus 1–2 denticulis muniti, erecti, 4 mm. longi, sinus inter eos plani; corolla campanulata, 11 mm. longa, alba, glabra, tubus corollae ca. 3 mm. longus, lobi oblongi, subacuti, 7 mm. longi et 3 mm. lati; stamina 5 libera 5 mm. longa; filamenta supra basin ovatam et ciliolatam filiformia, deflexa et iterum erecta; antherae anguste triangulares, 2.5 mm. longae; stylus 7 mm. longus, versus apicem parum incrassatus et strigosulus, corollae ca. $\frac{3}{4}$ longitudinem adaequans; stigmatis lobi 3 lineares, obtusi, duplo fere longiores quam latiores, patentes; capsula 3-locularis globosa.

Peru: *Weberbauer 7001* (type in Herb. Field Mus.).'

3. *Wahlenbergia linarioides* (Lam.) A. DC. Monogr. Camp. 158. 1830. *Campanula linarioides* Lam. Encycl. 1: 580. 1783. *C. chilensis* Mol. Sagg. Chile ed. 2. 281. 1810. *Breweria linifolia* Spreng. Syst. 1: 614. 1825; Mart. Fl. Bras. 6, pt. 4: 183. *pl. 49, f. 1.* 1885.

Suffrutescent, 34–55 cm. high, cespitose, glabrous or puberulent; branches simple, erect; leaves sessile, stiff, linear or somewhat dilated to the tip, acuminate, often subdenticulate, 5–17 mm. long, 0.6–4 mm. wide; inflorescence paniced; peduncles pseudodichotomous, much longer than the subtending leaves, the branchlets 1–3-flowered, 25–100 mm. long; pedicels erect, 4–10 mm. long; hypanthium obconic-elongate; sepals triangular, acuminate, denticulate or entire, 2–3 mm. long; corolla funnel-shaped, divided nearly to the middle, 5–6 mm. long, white, distally light blue, the lobes ovate, acute, spreading; stamens 2.5 mm. long; style 5 mm. long, with bilobed stigma; capsule cylindric-obconic, 10-ribbed, bilocular, dehiscent at the apex by 2 obtuse valves; seeds lenticular, glossy, 1 mm. long.

Peru: Probably occurring. Brazil, Uruguay to Chile, Ecuador.

3a. *Wahlenbergia linarioides* var. *filiformis* (R. & P.) A. DC. loc. cit. *Campanula filiformis* R. & P. Fl. 2: 55. *pl. 200c.* 1799.

Leaves linear, shorter, obtuse, denticulate below, entire above; inflorescence terminal, 3-flowered.

Peru: Without locality, *Ruiz & Pavón*. Chile.

4. *Wahlenbergia peruviana* Gray, Proc. Amer. Acad. 5: 152. 1861; Engler & Drude, Veg. Erde 12: 204. *f. 37.* 1911.

A small, prostrate, perennial herb, subglabrous or pubescent; leaves alternate, with narrowed, mostly ciliate, subsessile base, spatulate-oblong, 5 mm. long, 2-3 mm. wide, subacute to obtuse, obsolete denticulate, the uppermost leaves subtending the flowers; flowers solitary-terminal or corymbose; hypanthium broadly turbinate, sparsely pubescent; sepals 5, foliaceous, oblong, acute, 3 mm. long, 5 mm. wide, glabrous, ciliate at the base; corolla campanulate, light blue, 4-6 mm. long, the lobes oblong-acute, 2 mm. long; filaments 1.5 mm. long, expanded to the base from the middle; anthers 0.8 mm. long.

Huánuco: Above Baños in the Andes (A. Gray).—Libertad: Prov. Santiago de Chuco, above the Hacienda Angasmarca, 3,300 meters, *Weberbauer* 7199. Also in Bolivia.

5. *Wahlenbergia urcosensis* E. Wimm., sp. nov.

Herba perennis, humilis, prostrata, glabra, multicaulis; folia alterna, approximata, brevipetiolata, lamina spathulato-oblonga, 5 mm. longa, obtusa, basi attenuata, margine denticulis 2-3 utrinque; flos solitarius, terminalis, folia summa florem fulcrantia; hypanthium late turbينات, glabrum; sepala oblonga, foliacea, denticulata, 3-4 mm. longa; corolla campanulata, caerulescenti-alba, 9 mm. longa, tubus 3 mm. longus, lobi 5 oblongi, subacuti, 6 mm. longi, 2.5 mm. lati, antherae inter lobos prospicientes; filamenta a vertice usque ad basin sensim dilatata, 2 mm. longa; antherae 5 anguste conicae, 1.5 mm. longae; stylus 4.5 mm. longus, stigma trilobum; capsula ovoidea, apice valvis 3 dehiscent.

Cuzco: Prov. Quispicanchi, Vilcanota Valley near Urcos, 3,800 meters, low grass steppe with isolated shrubs, *Weberbauer* 7884 (type in Herb. Field Mus.).

3. *SPHENOCLEA* Gaertn.

Hypanthium adnate to the ovary, broadly hemispheric, the limb 5-parted. Estivation of the flower lobes imbricate. Corolla campanulate, the tube short, the 5 segments broad, incurved. Filaments short, dilated and adnate to the base of the corolla, the 5 anthers free. Style very short, the stigma short-bifid, smooth. Ovary 2-celled; placentae 2, stipitate; ovules numerous. Capsule broadly hemispheric, dehiscent by a nearly flat operculum below the calyx lobes. An annual, fleshy, erect herb.—A genus with one species, widely distributed in the tropics of both hemispheres, in damp places.

Sphenoclea zeylanica Gaertn. Fruct. 1: 113. *pl.* 24. 1788. *Rapinia herbacea* Lour. Fl. Cochinch. 127. 1790. *Gaertnera Pongati* Retz. Obs. Bot. 6: 24. 1791. *Pongatium indicum* Lam. Ill. 1: 444. 1791. *P. spongiosum* Blanco, Fl. Filipin. 86. 1837. *S. Pongatium* A. DC. in DC. Prodr. 7: 548. 1839.

An erect, fleshy, glabrous herb, 30–80 cm. tall; leaves lanceolate to elliptic, 5–7 cm. long, 0.8–3 cm. wide, entire, obtuse or acute, narrowed at the base into a petiole 3–10 mm. long; flower spike on a peduncle of 2–7 cm., the axis thick, 2–6 cm. long; corolla greenish yellow, broadly tubular, 5 mm. long and wide, the 5 lobes broadly ovate, acute, about 1 mm. long.

Peru-Colombia Boundary: Río Putumayo, swamp in forest, *Klug* 1615. Brazil and Ecuador to the West Indies, Africa, and Asia.

II. LOBELIOIDEAE

Annual or perennial herbs or shrubs, rarely arborescent. Leaves alternate, generally simple, petioled. Flowers perfect rarely dioecious, solitary in the axils of the leaves or bracts, often arranged in racemes or corymbs, very rarely in cymes, pedicellate. Calyx (hypanthium) adherent to the ovary, with 5 distinct sepals, these often somewhat unequal. Corolla irregular, tubular, very rarely nearly regular and almost eleutheropetalous, the tube entire or split on the upper side to or nearly to the base, straight or curved, the limb unequally 5-lobed and mostly 2-lipped; upper lip 2-lobed, the lower lip 3-lobed, rarely all the lobes separating at last to the base. Stamens 5, epigynous or epipetalous; filaments wholly or partly connate into a tube; anthers always united into a cylindric tube, this pilose or naked at the orifice or mostly the 2 lower anthers barbate. Gynoecium of 2 carpels. Ovary 2-celled, very rarely 1-celled. Styles terminal and wholly united into a narrow tube; stigma bilobed. Fruit a dehiscent capsule or a fleshy or dry berry. Seeds numerous, very small (0.4–1 mm.), smooth or scrobiculate.—Occurring in all five continents. The centers of distribution are the mountains of Central and South America, South Africa, and the Hawaiian Islands. A number of species are employed as ornamentals and several find use in medicine; the berries and leaves of some are eaten. We know at present about 1,000 species, distributed into 23 genera, of which 7 with 182 species are found in Peru.

Corolla tube cleft at the back, the limb mostly 2-lipped; fruit a capsule, dehiscent at the apex by 2 valves. 9. *Lobelia*.

Corolla tube entire, the limb often unequally 5-lobed, more rarely 2-lipped.

Slender and small herbs, 2–50 cm. high, caespitose or creeping or erect.

Dwarf, creeping plants; leaves reniform to roundish-ovate, long-petioled; fruit a berry.....4. *Hypsela*.

Small, caespitose or moss-like plants; leaves rosulate or imbricate, linear, lanceolate, triangular, or linear-spatulate; fruit a capsule, dehiscent at the apex by an operculum.

10. *Lysipomia*.

Erect herbs; lower leaves ovate, the others gradually narrowed, oblong to linear; fruit a capsule, dehiscent by 2 valves at the apex.....8. *Laurentia*.

Stronger, erect to climbing, suffrutescent plants or shrubs, rarely herbs, 0.5–4 meters high; corolla 2–7 cm. long.

Filaments epigynous or adnate at the base of the corolla; anther tube at the orifice obliquely open and softly pilose or naked or the 2 lower anthers at the apex villous-barbate. Fruit a berry, often inflated.....5. *Burmeistera*.

Filaments adnate to the corolla above the constricted part, rarely free from the corolla and then the corolla tube nearly equally broad; anther tube narrowed at the orifice, the 2 lower anthers cornute or barbate; corolla 2–7 cm. long and usually showy.

Fruit a globose or ovoid berry, crowned with the sepals.

6. *Centropogon*.

Fruit a capsule, dehiscent at the summit by the 2 valves, surrounded by the sepals.....7. *Siphocampylus*.

1. Lobelioideae-Bacciferae

4. HYPSELA Presl

Hypanthium obconic, enervate; sepals 5, triangular. Corolla tubular, the tube entire, cylindric, the limb 5-lobed, somewhat bilabiate. Two lower anthers terminated by 2 bristles and some shorter hairs. Stigma bilobed, the lobes roundish, divaricate. Berry dry, 2-locular, many-seeded, crowned by the connivent sepals.—Only one species is known.

Hypsela reniformis (HBK.) Presl, Prodr. Lobel. 45. 1836.
Lysipomia reniformis HBK. Nov. Gen. & Sp. 3: 320. pl. 266, f. 2.

1819. *L. reniforme* A. DC. in DC. Prodr. 7: 350. 1839. *Pratia longiflora* Hook. f. Fl. Antarct. 2: 325. 1847. *P. repens*, *P. oligophylla*, *P. subsessilis* Wedd. Chlor. And. 2: 9–10. pl. 45. 1857. *P. atacamensis* Phil. Fl. Atacam. 34. 1860. *P. pencana* Phil. Anal. Univ. Chil. 53. 1861. *H. oligophylla* Benth. & Hook. f. Gen. Pl. 2: 550. 1876.

A dwarf herb, rooting, glabrous, densely cespitose; leaves long-petioled, roundish-ovate to oval, 2–7 mm. long and broad; peduncle solitary, axillary, shorter than the petiole, this 1–5 mm. long. Calyx lobes triangular, acute, 1.3 mm. long. Corolla white, barely tinted with a pinkish lavender shade, 8–10 mm. long, the tube slightly funnel-shaped, the lobes lanceolate, 3–5 mm. long. Filaments not adnate; anthers dark violet.—It may be noted that the fruit is a real berry and not dehiscent. The genus is distinguished from *Pratia* only by its entire corolla tube.

Arequipa: Arequipa and Malapata, 2,000 meters, *Guenther & Buchtien 1597, 1837, 1888*.—Cuzco: La Raya, wet moor, 4,300–4,500 meters, *Pennell 13502*.—Junín: Cerro de Pasco, 4,600 meters, *2397*. Hacienda Arapa near Yauli, marshy mats, 4,400 meters, *Weberbauer 295*. La Oroya, mat on a brook, 3,900 meters, *Weberbauer*.—Moquehua: Near Volcán Ticsani, Carumas, 4,000 meters, *Weberbauer 7328*. *Mathews 910*.—Puno: Lake Titicaca, on shore, *Mandon 489*. Near Puno, 4,000 meters, *Soukup 100*. Extending from Ecuador to Argentina and in Chile to the Strait of Magellan (*Lechler 1214*).

5. BURMEISTERA Karst. & Triana

Reference: Wimmer, Repert. Sp. Nov. 30: 1–52. *ill.* 1932.

Stout herbs or suffrutescent plants or shrubs, erect or climbing, sometimes epiphytic. Leaves alternate, entire. Flowers peduncled, solitary in the axils of the upper leaves, very rarely corymbose. Corolla greenish to yellowish, rarely brown-purplish, 14–35 mm. long, its tube entire, straight, at base and throat more or less inflated, at the middle narrowed (*corolla form a*), or rarely the tube from base to limb nearly equally wide (*corolla form b*); limb 5-lobed, the lower lobes shorter than the upper and more deeply separated, all deflexed. Stamens 5, completely connate and exserted, not adnate to the corolla or only at the base. Anther tube cylindric, subcurved, at the orifice somewhat widened and obliquely cut, all around softly pilose or (rarely) naked or only the 2 lower anthers villous-barbate. Stigma bilobed, the lobes roundish. Berry subglobose to oblong, often inflated, crowned by the sepals. Seeds numerous, brown, shining, hardly 1 mm. in diameter.—Occurring from Guate-

mala to Peru in the Andean mountains on brooks, in humid valleys, and in forests. Of the 70 known species 6 are found in Peru.

Anther tube around the orifice softly pilose or naked...1. *Imberbes*.

Corolla tube narrow cylindric, 4 mm. in diameter, under the inflated limb somewhat constricted, the lobes unequal, falcate, deflexed. Glabrous; leaves oblong, 11 cm. long, 3 cm. wide, at both ends acute, unequally dentate; sepals subulate, spreading, 4-5 mm. long.....4. *B. ramosa*.

Corolla tube widely cylindric, 8 mm. in diameter, 14 mm. long, the limb hardly inflated, the lobes falcate, 10 mm. long.

Sepals sublinear, suberect, 12 mm. long; leaves oblong-ovate, acute, 7.5 cm. long, 4 cm. wide.....5. *B. tricolorata*.

Sepals lance-triangular, spreading, 8-10 mm. long, 4 mm. broad at the base; leaves lance-ovate, acuminate-cuspidate, 7 cm. long, 1.8 cm. wide.....6. *B. Weberbaueri*.

Two lower anthers barbate at the tip; plants ferruginous-stellate-tomentose.....II. *Barbatae*.

Leaves lanceolate, 10-17 cm. long, 1.5-3 cm. wide, acute at both ends.....2. *B. macrocarpa*.

Leaves oblong to elliptic-oblong, 12 cm. long, 4.6 cm. wide, acuminate at both ends; sepals linear, 35-40 mm. long.

3. *B. peruviana*.

Leaves elliptic, 12 cm. long, 5.5 cm. wide, short-acuminate, acute at the base; pedicels 7 cm. long (in fruit to 12 cm. long).

1. *B. asteriscus*.

1. **Burmeistera asteriscus** E. Wimm. Repert. Sp. Nov. 38: 5. 1935.

Suffrutescent, ochreous-stellate-tomentose; petioles 15-20 cm. long; leaves elliptic, acuminate, obtuse at the base, densely callous-denticulate, 8.5-12 cm. long, 3.5-5.5 cm. wide, rough above, slightly and on the veins densely tomentose beneath; peduncles axillary, floccose, 7 cm. long, near the base with 2 subulate bractlets; hypanthium semi-ellipsoid, 12 mm. long, 10 mm. wide; sepals lanceolate, callous-denticulate, subglabrous, 16-18 mm. long; corolla 20 mm. long, greenish yellow(?), the lobes sublinear, 12-7 mm. long; filaments glabrous, 32 mm. long; anther tube 8 mm. long, pilose on the sutures, the 2 lower anthers barbate at the apex.

Cuzco: Forest above Pillahuata, Cerro de Cusilluyoc, 2,200-2,400 meters, *Pennell 13959*, type.

2. **Burmeistera macrocarpa** (A. Zahlbr.) E. Wimm. Repert. Sp. Nov. 30: 41. *pl.* 125, *f.* 40. 1932. *Centropogon macrocarpus* A. Zahlbr. Bot. Jahrb. 37: 452. 1906.

A shrub 2 meters high, throughout ferruginous-stellate-pilose; leaves lanceolate, 15 cm. long, 2.5 cm. wide, subacuminate, narrowed at the base into a petiole 7–10 mm. long, callous-denticulate; flowers solitary, axillary, often corymbose at the summit; peduncles 7–10 cm. long, with 2 bractlets at the base; hypanthium obconic-oblong, 20 mm. long and 9 mm. broad; sepals narrowly triangular, denticulate, erect, 15–16 mm. long; corolla greenish, sparsely pilose, 3 cm. long, the tube 14 mm. long, 5 mm. wide, the lobes unequal, falcate, 20–8 mm. long; anther tube pilose on the basal part, otherwise glabrous, 11 mm. long, the 2 lower anthers barbate; berry ovoid, 5 cm. long, 3 cm. wide. Neg. 30990.

Huánuco: Huamalíes, in the mountains south of Monzón, 3,400 meters, *Weberbauer 3344*, type.

3. **Burmeistera peruviana** E. Wimm. Repert. Sp. Nov. 38: 5. 1935.

Suffrutescent, ochreous-tomentose; leaves oblong, 16 cm. long, 4.5 cm. wide, acuminate-cuspidate, at the base acute and narrowed into a petiole 15 mm. long, callous-denticulate; flowers solitary in the axils; peduncles 12–15 cm. long, with 2 subulate bractlets near the base; hypanthium cylindric-oblong, 3 cm. long, 1.2 cm. wide; sepals linear, denticulate, spreading, 35–40 mm. long; corolla greenish yellow, 25 mm. long; berry ovoid, 35 mm. long, 26 mm. wide.

Cuzco: Pillahuata, Cerro de Cusilluyoc, in thicket, 3,200 meters, *Pennell 14138*, type.

4. **Burmeistera ramosa** E. Wimm. Repert. Sp. Nov. 30: 16. *pl.* 124, *f.* 17. 1932.

Suffrutescent, glabrous, branching, epiphytic (only?); petioles 10 mm. long; peduncles nearly 6 cm. long; flowers solitary, axillary; hypanthium turbinate, 5 mm. long; sepals sublinear, denticulate, spreading to subreflexed, 4–5 mm. long; corolla greenish (form a!), 3 cm. long; anther tube whitish, 7 mm. long. Neg. 9073.

Loreto: Forest near Iquitos, 160 meters, *Tessmann 4725*, type.

5. **Burmeistera tricolorata** E. Wimm. Repert. Sp. Nov. 30: 22. *pl.* 125, *f.* 30. 1932.

Suffrutescent, glabrous; petioles 10 mm. long; leaf blades oblong-ovate, acute, subrounded at the base, 5.5 cm. long, 2.5–3.5 cm. wide,

slightly crenate and callous-denticulate, glabrous above, minutely puberulent or glabrate beneath; flowers solitary, on peduncles 5–6 cm. long; hypanthium hemispheric, glabrous, 12 mm. wide; corolla 24 mm. long, puberulent, green, on the upper side purplish, on the lower yellowish, the lobes triangular-linear, 12–10 mm. long; anther tube 8 mm. long.

Cuzco: Pillahuata, Cerro de Cusilluyoc, on Río Pillahuata, 2,400 meters, *Pennell 14001*, type.

6. *Burmeistera Weberbaueri* A. Zahlbr. Bot. Jahrb. 37: 451. 1906; Wimm. op. cit. 21. *pl. 125, f. 29*.

An herb 1 meter high, glabrous; leaves subsessile, ovate-lanceolate, 3–9 cm. long, 7–2.8 cm. wide, acuminate-cuspidate, rounded or obtuse at the base, densely callous-denticulate; flowers solitary in the axils, crowded at the summit; peduncles 6–8.5 cm. long; hypanthium broadly turbinate, 5 mm. long, 10 mm. wide; corolla brown-red, yellowish within, 22 mm. long (form b!), the lobes 15–8 mm. long; anther tube greenish, 8–10 mm. long. Neg. 9074.

Junín: Tarma, in the mountains east of Huacapistana, 3,200 meters, *Weberbauer 2473*, type.—Without data, *Lobb*.

6. CENTROPOGON Presl

Suffrutescent, shrubby, or rarely herbaceous plants, erect or climbing. Leaves alternate, entire. Flowers solitary in the axils of the upper leaves or in racemes, often crowded at the summit and corymbose, pediceled. Calyx with 5 lobes, these distinct or sometimes connate below. Corolla mostly large and showy; tube cylindric, often curved, constricted above the base, after that expanded abruptly or gradually to the summit (*corolla form a*) or (rarely) almost equally wide from the base to the limb (*corolla form b*); limb with 5 unequal, triangular-linear, falcate, deflexed or spreading lobes, the upper larger than the lateral, the lowest lobe the shortest. Filaments connate into a tube, distinct below and adnate to the corolla above the constricted part (nearly 5–10 mm. above the base). Anther tube cylindric, subcurved, exserted, the 2 lower anthers appendaged at the tip with a triangular scale of conerescent hairs (“cornute,” section *Eucentropogon*) or with penicillate hairs (“barbate,” section *Syphocampylodes*). Style with 2 roundish stigma lobes. Fruit a 2-celled berry, crowned by the calyx lobes.—The species of the section *Syphocampylodes* can be distinguished certainly from *Siphocampylus* only by the mature fruit. At present

there are known 212 species, distributed in the cordilleras from Mexico to Peru, a few in the mountains of Venezuela, and from Brazil to Argentina. In Peru are found 68 species.

- A. Two shorter anthers with a triangular appendage (cornute) at the apex.....1. *Eucentropogon*.
- B. Flowers solitary in the axils of the leaves and more or less remote.....1. *Axillares*.
- Sepals reflexed, narrowly triangular, denticulate, 10–15 mm. long.....51. *C. puerilis*.
- Sepals erect to spreading.
- Plants hirsute; leaves elliptic-lanceolate, acuminate, acute at the base.....31. *C. hirtus*.
- Plants glabrous, scabrellate, or somewhat pubescent.
- Sepals triangular, 3 mm. long; leaves elliptic, acuminate.
32. *C. hypotrichus*.
- Sepals sublinear, 10–20 mm. long.
- Leaves oblong-lanceolate, at both ends long and gradually acuminate, 20 cm. long, 4.5 cm. wide.
20. *C. exasperatus*.
- Leaves oblong, ovate-oblong, or oblong-elliptic, acute or acuminate at the apex, acute or subrounded at the base.
- Anthers glabrous; sepals 20 mm. long.
38. *C. longipetiolatus*.
- Anthers pilose, sometimes only at the tip; sepals 12–15 mm. long.....14. *C. cornutus*.
- B. Flowers in terminal, lax, elongate racemes; bracts minute or sometimes small and foliaceous; climbing shrubs with pendent branches.....2. *Botryoides*.
- Plants pubescent, except the glossy upper leaf surface; sepals sublinear, suberect, 15–17 mm. long.....65. *C. vernicosus*.
- Plants essentially glabrous; sepals 4–11 mm. long.
- Leaves roundish-ovate; bracts roundish.....45. *C. ostrinus*.
- Leaves ovate, elliptic, oblong-lanceolate, or rarely obovate-elliptic.
- Filaments pubescent; anther tube with long, yellowish hairs in the commissures.
- Sepals subulate, erect, 4 mm. long.....52. *C. pulcher*.

- Sepals linear, spreading, 6–7 mm. long. 63. *C. urubambae*.
 Filaments glabrous; anther tube glabrous or scarcely pilose.
 Leaves ovate to broadly elliptic, 6 cm. long, 4 cm. wide,
 narrowed to the obtuse apex; sepals reflexed, 5–8
 mm. long. 6. *C. auratus*.
 Leaves elliptic-oblong and 9 cm. long, 4 cm. wide, or
 oblong-lanceolate, acute to acuminate; sepals spread-
 ing to reflexed, 6–11 cm. long. . . 69. *C. yungasensis*.
- B. Flowers in terminal, short or corymbiform racemes, bracted or
 the subtending leaves much smaller, 1–3 flowers sometimes
 in the axils of the uppermost leaves. 3. *Corymboides*.
- C. Climbing shrubs with pendent branches and long-peduncled,
 upward curved racemes, 0.3–4 meters high; flowers crowded
 at the ends; scars of lower fallen flowers present; bracts
 minute.
 Sepals ovate-triangular, acute, denticulate, 8–10 mm. long.
 15. *C. densiflorus*.
 Sepals triangular or subulate, 2–6 mm. long.
 Peduncles verruculose or shortly squamulose-hispid.
 Leaves oblong-lanceolate, acuminate, acute at the base.
 Corolla 23 mm. long; anther tube glabrous.
 12. *C. casapiensis*.
 Corolla 30 mm. long; anthers pilose. . . 46. *C. parvulus*.
 Leaves elliptic, ovate-elliptic, or obovate-oblong, acute
 or abruptly acuminate; bracts minute.
 29. *C. granulosus*.
 Leaves oblong-elliptic, rounded and shortly acute at the
 tip; bracts subobovate-oblong, 25 mm. long.
 2. *C. alsophilus*.
 Peduncles smooth, glabrous; leaves oblong, acute, or elliptic
 or ovate-elliptic and acuminate. 1. *C. aggregatus*.
- C. Usually erect herbs or shrubs (or also straggling?) with
 ordinarily straight racemes, 0.3–2 meters high; bracts
 minute or small and foliaceous.
- Plants pubescent.
 Sepals triangular, entire, 3 mm. long; leaves elliptic, acu-
 minate at both ends. 62. *C. umbrosus*.
 Sepals sublinear, denticulate, 10 mm. long; leaves oval, 10
 cm. long, 6 cm. wide. 48. *C. pilosulus*.

Plants essentially glabrous.

Leaves fimbriate-denticulate, obovate-oblong or oblong-elliptic.....57. *C. sciaphilus*.

Leaves slightly crenate or callous-denticulate.

Leaves broadly oval, 12 cm. long, 8 cm. wide, abruptly acuminate, rounded at the base....36. *C. latifolius*.

Leaves obovate-oblong, gradually narrowed at the base.

Corolla 22-24 mm. long; leaf tip gradually acuminate.

7. *C. Bangii*.

Corolla 42 mm. long; leaf tip short-acuminate.

39. *C. loretensis*.

Leaves elliptic-oblong-elongate, 25 cm. long, 8 cm. wide, acute to acuminate, acute at the base; sepals sub-linear, recurved at the apex....49. *C. Planchonis*.

C. Erect herbs or suffrutescent plants, 0.25-1.2 meters high; racemes capitate, short-peduncled or sessile, rarely somewhat elongate; bracts mostly rosulate, surpassed by the large upper leaves.

Sepals connate at the base (*Gamosepali*).

Plants glabrous, at least on the leaves.

Leaves lance-linear, 10 cm. long, 1 cm. wide, gradually tapering to both ends.....58. *C. silvaticus*.

Leaves obovate-oblong or elliptic-oblong, acuminate, cuneate at the base.

Leaves fimbriate-dentate.....34. *C. inflatus*.

Leaves callous-denticulate.

Free parts of the sepals broadly ovate, salient-denticulate.....54. *C. roseus*.

Free parts of calyx lobes narrow-triangular, entire, 10 mm. long, the whole calyx 16 mm. long.

28. *C. grandicephalus*.

Free sepal parts triangular, denticulate, 5 mm. long, with the connate portion at most 12 mm. long.

24. *C. gamosepalus*.

Plants hirsute; sepals narrow-triangular, the connate portion 3-5 mm. long.

Leaves oblong-elliptic, acuminate; corolla hirsute.

26. *C. gesnerioides* var. *zelans*.

Leaves lanceolate, 15 cm. long, 3 cm. wide, acuminate;
corolla glabrous.....18. *C. eurystomus*.

Sepals distinct from the base.

Leaves essentially glabrous.

Bracts lanceolate to linear, 15–20 mm. long (with the
petiole).....42. *C. macrophyllus*.

Bracts obovate-spatulate, rounded or abruptly short-
acuminate, 3 cm. long, 2 cm. wide.

Leaves obovate-cuneate.....11. *C. capitatus*.

Leaves oblong-elliptic, acuminate, acute at the base.

11. *C. capitatus* var. *Fieldii*.

Leaves hirsute or scabrellous-puberulent.

Sepals triangular, denticulate, 5–6 mm. long; leaves
elliptic, acuminate at both ends.

25. *C. gesneraeformis*.

Sepals narrow-triangular to sublinear, 7–14 mm. long.

Plants scabrellous-puberulent; leaves lance-elongate,
14 cm. long, 2.5 cm. wide, long-acuminate to both
ends; pedicels 7–8 cm. long....20. *C. exasperatus*.

Plants hirsute throughout.

Pedicels 7–8 cm. long; bracts oblong, obtuse.

31. *C. hirtus*.

Pedicels 2–5 cm. long.

Sepals 14 mm. long; bracts elliptic, acute.

26. *C. gesnerioides*.

Sepals 7–8 mm. long; bracts oblong, subobtuse.

10. *C. caninus*.

A. Two shorter anthers with penicillate hairs at the apex (*Penicil-
lati*).....II. *Syphocampyloides*.

D. Glabrous or pilose plants, the hairs unbranched, simple.

Corolla (form a) tube 2–4 times longer than the lobes.

Plants quite glabrous.

Leaves fimbriate-dentate, oblong, acuminate.

59. *C. subandinus*.

Leaves callous-denticulate, elliptic, subacuminate.

53. *C. reticulatus*.

Plants sparsely pubescent; leaves ovate to elliptic, acute,
unequally dentate.....61. *C. Tessmannii*.

Corolla (form b) tube nearly as long as the upper lobes.

Leaves lanceolate, 44 cm. long, 11 cm. wide, gradually tapering to both ends, densely callous-denticulate. 3. *C. altus*.

Leaves oblong-lanceolate, elliptic, or ovate-oblong.

Plants sordid-brownish-tomentellous; leaves oblong, 23 cm. long, 6 cm. wide, acute, subacute at the base.

8. *C. Brittonianus*.

Plants gray-tomentose.

Leaves oblong-obovate, 25 cm. long, 10 cm. wide, short-acuminate, cuneate to the base 33. *C. incanus*.

Leaves ovate-oblong, acute, rounded at the base.

16. *C. Dombeyanus*.

Leaves ovate, subacute, truncate at the base, 5 cm. long, 3 cm. wide; corolla relatively small, 17 mm. long (genus of this species uncertain, perhaps *Burmeistera*?) 68. *C. Weddellii*.

D. Plants with stellate or branched hairs (*Stellato-tomentosi*).

E. Sepals dentiform or triangular, 1–3 mm. long.

Leaves oval, rounded at the apex; plant densely purple-tomentose. 19. *C. erythraeus*.

Leaves ovate, acute; plants ferruginous-tomentose.

60. *C. subcordatus*.

Leaves lanceolate or lance-oblong.

Filaments pubescent; anthers pilose.

Corolla subtomentose, 50 mm. long, nearly straight.

37. *C. longifolius*.

Corolla 30 mm. long, curved. 22. *C. ferrugineus*.

Filaments and anthers glabrous; corolla 40–45 mm. long.

Tomentum ferruginous. 56. *C. scabiosus*.

Tomentum gray-white, long. 44. *C. nervosus*.

E. Sepals narrow-triangular or linear, 4–15 mm. long.

F. Sepals erect to somewhat spreading.

Filaments glabrous; anthers sparsely pilose; leaves oblong-ovate, 5–7 cm. long, 2.3–3 cm. wide, acuminate, rounded at the base. (See also *C. Featherstonei* and *C. verbascifolius*!) 50. *C. Preslii*.

Filaments and anthers pilose (anthers sometimes with few hairs).

Leaves oblong, 8 cm. long, 2.4 cm. wide, subacuminate,
at the base subobtusate; sepals 4 mm. long.

17. *C. erianthus*.

Leaves elliptic or oblong, sometimes obovate-elliptic or
ovate- to obovate-oblong.

Leaves beneath very shortly ochreous-tomentose, 8 cm.
long, 3 cm. wide, elliptic-oblong, acuminate.

Corolla 35 mm. long; sepals 7 mm. long.

5. *C. astrotrichus*.

Corolla 50 mm. long; sepals 12–13 mm. long.

41. *C. Macbridei*.

Leaves beneath densely gray-ochreous- or ferruginous-
tomentose.

Sepals entire, 6–9 mm. long; leaves elliptic or
obovate-elliptic.

Apex of leaves rounded or subacute; plant sordid-
gray-tomentose. 13. *C. comosus*.

Apex of leaves acuminate; plant brown-tomentose.

9. *C. bruneo-tomentosus*.

Sepals prominently toothed, 5–9 mm. long.

Leaves oblong (sometimes ovate- or obovate-
oblong), acute, rounded at the base; pedicels
6–17 cm. long. 21. *C. Featherstonei*.

Leaves elliptic (ovate-elliptic), acute or sub-
acuminate, acute to obtuse at the base;
pedicels 3–4 (–8) cm. long.

64. *C. verbascifolius*.

F. Sepals reflexed, lance-linear, 7–8 mm. long; leaves acute,
subacute at the base. 23. *C. fuscus*.

E. Sepals linear to lanceolate, 10–45 mm. long. (Corolla form a.)

Leaves lanceolate to oblong.

Sepals divaricate to reflexed.

Sepals lanceolate, 11–17 mm. long, 3–4 mm. wide;
pedicels without bracteoles, 9–10 cm. long; leaves
lanceolate, acuminate-cuspidate. 67. *C. Weberbaueri*.

Sepals linear, salient-denticulate, 30–45 mm. long.

47. *C. perlongus*.

Sepals suberect, linear, salient-denticulate, 10–12 mm. long;
leaves sharply dentate. 4. *C. argutus*.

Leaves elliptic.

Sepals reflexed, lanceolate, 15 mm. long, 5 mm. wide, acute.

23. *C. fuscus* var. *Gleasonii*.

Sepals spreading or suberect.

Plants reddish-yellow-tomentose; leaves acuminate; sepals lanceolate, acuminate, 14–18 mm. long, 4 mm. wide.....55. *C. rufus*.

Plants gray-yellowish-tomentose; sepals linear, entire.

Leaves very shortly acuminate; sepals 10–15 mm. long.

40. *C. luteus*.

Leaves rounded to obtuse at the apex, rounded at the base; sepals 18–21 mm. long....30. *C. Hartwegii*.

E. Sepals linear or oblong-lanceolate, 18–30 mm. long. (Corolla form b.)

Sepals reflexed, linear-lanceolate, acuminate, denticulate in the upper portion, 20–24 mm. long, 5–7 mm. wide.

27. *C. gloriosus*.

Sepals suberect to somewhat spreading.

Leaves elliptic-oblong, acute, obtuse at the base, 17 cm. long, 5.5 cm. wide; sepals lanceolate, 18–22 mm. long, 5–8 mm. wide.....43. *C. Mandonis*.

Leaves lanceolate, acuminate, acute at the base.

Hypanthium nearly hemispheric; corolla at the throat 21 mm. wide when pressed.....35. *C. isabellinus*.

Hypanthium cylindric; corolla at throat 10 mm. wide.

66. *C. viriduliflorus*.

1. ***Centropogon aggregatus*** (Rusby) Gleason, Bull. Torrey Club 48: 199. 1921. *Siphocampylus aggregatus* Rusby, Bull. N. Y. Bot. Gard. 8: 122. 1912.

A shrub with slender, pendent branches, 2 meters high, glabrous; petioles 12 mm. long; leaves oblong, acute, at the base subrounded, subcrenate, 12 cm. long, 4.5 cm. wide; peduncle 12 cm. long; pedicels about 3 cm. long, puberulent; hypanthium almost hemispheric; sepals narrowly triangular, entire, 6 mm. long; corolla red, distally yellow, falcate-curved, 4 cm. long; filaments pubescent, exserted; anther tube 8 mm. long, purple-pilose on the fissures.

Peru: Probably occurring. Bolivia.

1a. *Centropogon aggregatus* var. *cardinalis* (A. Zahlbr. & Rech.) E. Wimm., var. nov. *C. cardinalis* A. Zahlbr. & Rech. Medd. Rijks Herb. 19: 51. 1913.

Leaves elliptic, 11 cm. long, 5 cm. wide, acuminate; sepals often somewhat shorter; corolla puberulent, scarlet, the limb orange-red.

Junín: Chanchamayo Valley, 1,200 meters. *Schunke* 347.—Puno: Chunchusmayo, edge of forest, 900 meters, *Weberbauer* 1166. Bolivia.

2. *Centropogon alsophilus* E. Wimm., sp. nov.

Suffrutex scandens, ramis fistulosis herbaceis; folia alterna, internodiis 3 cm. longis; petiolus 5 mm. longus; lamina foliorum elliptica, 9–10 cm. longa, 3.5–5 cm. lata, obtusa et brevissime acuminata, basi obtusa usque subrotundata, margine plano-crenata et callose denticulata, subcoriacea, glabra; flores in racemo bracteato, subelongato; bracteae oblongae, 2–3 cm. longae 1–2 cm. latae subrotundatae usque subacutae, basi in petiolum brevem marginatum angustatae vel subsessiles; pedicelli 25–30 mm. longi, puberuli; hypanthium hemisphericum, lobis anguste triangularibus, integris, 4 mm. longis, erectis; corolla kermesina, puberula, subcurvata, 35 mm. longa, tubus a basi usque ad faucem leviter ampliatus, 7 mm. latus; lobi triangulares falcati 10–5 mm. longi; filamenta glabra; antherarum tubus luteolus, pilis paucis obsitus, antherae 2 inferiores cornutae.

San Martín: Zepelacio near Moyobamba, mountain forest, 1,200–1,600 meters, *Klug* 3432 (type in U. S. Nat. Herb.).

3. *Centropogon altus* E. Wimm., sp. nov.

Herba 2.4 m. alta, plerumque simplex, superne saltem sparse hirsuta; folia alterna, petiolo hirsuto 3 cm. longo; lamina lanceolata, 44 cm. longa, 11 cm. lata, in apicem longum sensim acutata, basi acuta, supra furfuracea, subtus ad nervos furfuraceo-viscidula, venis pellucidis subhirta, nervi secundarii sub angulo subrecto excurrentes, 8–15 mm. ab invicem distantes, margine dense callose purpureo-denticulata; flores solitarii axillares; pedicelli hirti crassi 25–28 cm. longi, basi bibracteolati; corolla non visa!; bacca subglobosa, furfuraceo-viscidula, 45 mm. longa, 40 mm. lata.

Huánuco: Tambo de Vaca, 4,000 meters, *Macbride* 4470 (type in Herb. Field Mus.).

4. *Centropogon argutus* E. Wimm. Repert. Sp. Nov. 29: 77. 1931.

Frutescent, ferruginous-stellate-tomentose, mostly more floccose; leaves lanceolate, 7.5 cm. long, 3 cm. wide, subacuminate, narrowed at the base into a petiole 9 mm. long, unequally and sharply dentate, glabrous above, thin, stellate-pubescent beneath; flowers solitary, axillary; pedicels somewhat floccose, 3 cm. long, bibracteolate at the base; sepals linear, 10–12 mm. long, tomentose, with salient teeth; corolla (form a) purple, floccose, nearly straight, 46 mm. long; filament tube glabrous; anther tube pilose on the fissures.

Without locality: *Lobb*, type.

5. *Centropogon astrotrichus* E. Wimm. Notizbl. Bot. Gart. Berlin 10: 735. 1929.

Suffrutescent, shortly ferruginous-stellate-tomentose; leaves elliptic-oblong, 8 cm. long, 3.2 cm. wide, acuminate, narrowed at the base into a petiole 8 mm. long, densely callous-denticulate, above sparsely, beneath densely short-tomentose; flowers axillary; pedicels 7–8.5 cm. long, bibracteolate above the base; hypanthium depressed-globose; sepals linear, 7–8 mm. long, denticulate, erect; corolla red with a yellow limb, 37 mm. long, thinly tomentose (form a); filaments puberulent; anther tube 9 mm. long, nearly glabrous.

Huánuco: Slope from Muña to Tambo de Las Vacas, *Raimondi* 2897, type.

6. *Centropogon auratus* E. Wimm. Repert. Sp. Nov. 19: 243. 1924. *C. rubrovenosus* Gleason, *Torrey* 25: 93. 1925.

A climbing shrub with slender branches; leaves ovate-elliptic, 7 cm. long, 4.5 cm. wide, subacuminate toward the obtuse apex, obtuse to rounded at the base into a petiole 5–10 mm. long, subcrenate and denticulate; pedicels 3–4 cm. long; sepals linear, reflexed, 5–8 mm. long; corolla (form a) scarlet, with a yellow spot at the throat, 32 mm. long; filaments glabrous; anther tube 8 mm. long, short-hirsute at the apex.

Huánuco: In the mountains near Hualлага, 2,400–2,500 meters, *Weberbauer* 6716, type. Near Muña, *Pearce* 532. Huacachi, 2,200 meters, 4104, type of *C. rubrovenosus*.

7. *Centropogon Bangii* A. Zahlbr. Bull. Torrey Club 24: 372. 1897.

An erect herb, the younger parts hirtellous, glabrescent and scabrellous in age; leaves obovate-oblong to nearly oblong, 11–22 cm. long, 4–6 cm. wide, gradually acuminate at the apex, unequally denticulate, gradually narrowed to a short petiole, glabrescent above,

inconspicuously puberulent beneath, somewhat densely so on the veins; inflorescence terminal, subcorymbose, few-flowered; floral leaves much smaller than the upper cauline leaves, about 5 cm. long; pedicels 22–24 mm. long; hypanthium depressed-globose; sepals narrowly triangular, acuminate, 5–6 mm. long, at the base 3 mm. wide, entire, erect; corolla crimson (form a), 22–24 mm. long, 5 mm. wide at the throat, the lobes 7–5 mm. long; filaments pubescent above; anther tube 5 mm. long, slightly pilose.

Perhaps in Peru. Bolivia: Yungas, 1,200 meters, *Bang* 500; *Rusby* 1093.

8. **Centropogon Brittonianus** A. Zahlbr. Bull. Torrey Club 24: 373. 1897. *Siphocampylus giganteus* var. *latifolius* Britton, op. cit. 19: 373. 1892, non Vatke.

A stout, tall herb(?), glabrescent below, the upper parts grayish-fulvous-tomentulose; leaves oblong, 18–22 cm. long, 5–7 cm. wide, subacuminate, narrowed at the base and decurrent into an indefinite petiole, the margin with callous teeth, soon glabrescent on the upper surface, covered with interwoven hairs especially on the veins and when young; pedicels axillary, 16–18 cm. long, tomentulose, with 2 filiform bractlets above the base; hypanthium oblong-ovoid, 15 mm. long, 11 mm. wide, tomentulose; sepals lance-linear, 26–30 mm. long, about 3 mm. wide, glandular-denticulate, suberect, floccose-tomentulose; corolla (form b) orange-red (?), puberulent, its tube 20 mm. long and 11 mm. wide, straight, the lobes sublinear, acutish, subcurved, the upper 20 mm. long and 5 mm. wide, the lower about 10 mm. long; filaments pilose, exserted, not adnate to the corolla; anther tube 15 mm. long, with dense, livid hairs in the 5 commissures.

Peru: Probably. Bolivia.

9. **Centropogon bruneo-tomentosus** E. Wimm., sp. nov.

Rami inferne glabrescentes, superne sicut aliae partes dense bruneo-tomentosi vel -floccosi ex pilis ramosis; petioli crassi, 16–25 mm. longi; folia elliptica, 10 cm. longa, 5.6 cm. lata, acuminata, basi late cuneata usque obtusa, margine leviter repanda callose denticulata, membranacea, supra sparse pilosa vel glabrescentia, subtus dense bruneo-tomentosa vel floccosa, nervi laterales ab invicem 5–7 mm. distantes, sub angulo 70° fere recte excurrentes; flores in axillis foliorum solitarii; pedicelli crassi, tomentosi, circiter 7 cm. longi, basi bracteolis 2 linearibus 6 mm. longis ornati; calyx semi-globosus, 10–12 mm. in diametro, tomentosus, eius lobi sublineares, 6–8 mm. longi, tomentosi, erecti, sinus inter eos fere plani; corolla

rubra, tomentosa, 43 mm. longa, tubus supra basin parum attenuatus, dein ad faucem paulum ampliatus, 35 mm. longus, lobi sublineares, falcati, circiter 15–12 mm. longi; filamenta pubescentia, exserta; antherarum tubus 9 mm. longus, fuscus, versus apicem pilis luridis praeditus; antherae 2 inferiores barbatae.

Cajamarca: Prov. Chota, montaña between Llama and Huambo, *Raimondi* 12036 (type in herb. Berlin).

10. *Centropogon caninus* E. Wimm. Notizbl. Bot. Gart. Berlin 10: 734. 1929.

Hirsute throughout; leaves elliptic-lanceolate, 11 cm. long, 3.5 cm. wide, acuminate, cuneately narrowed into a petiole 10 mm. long, densely callous-denticulate and ciliate, sparsely hirsute above, densely so beneath; several flowers in the axils of the uppermost leaves, the others crowded at the summit of the stem; pedicels hirsute, 15–20 mm. long; hypanthium hemispheric; sepals narrowly triangular, entire, 7–8 mm. long; corolla (form a) hirsute, 23 mm. long; stamen tube glabrous.

Junín: Tarma to Chanchamayo, *Raimondi* 2849, type.

11. *Centropogon capitatus* Drake, Journ. de Bot. 3: 238. 1889.

An erect herb, glabrous, 50 cm. high; leaves obovate-oblong, 29 cm. long, 8 cm. wide, acuminate, cuneate to the base and into a petiole 8 mm. long, densely dentate, often slightly puberulent beneath; bracts spatulate-cuneiform, acutish, rounded or truncate at the apex, denticulate or subentire, 3–4 cm. long, 1.4–3 cm. wide, green to reddish; pedicels subumbellate, about 12 mm. long; sepals 10 mm. long, sublinear, denticulate; corolla (form a) inconspicuously puberulent, light pink or red-violet, 3 cm. long; filaments glabrous; anther tube pilose at the base, 6 mm. long. Neg. 29441.

Junín: Chanchamayo valley, *Schunke* 1603, 1604. Eneñas, Pichis Trail, dense forest, *Killip & Smith* 25772. Montaña de Pangoa, Llalla, *Raimondi* 8780.—San Martín: Tarapoto, *Spruce* 4132. Zepelacio, in mountain forest, 1,200–1,600 meters, *Klug* 3500.—Puno: Sangabán, *Lechler* 2163. Type, *Poortman* 198 from Ecuador, near Loja.

11a. *Centropogon capitatus* f. *hirtus* A. Zahlbr. Ann. Hofmus. Wien 6: 436. 1891.

Leaves on the upper surface sparsely, on the lower more densely hispid.

Peru: In dense, subandean forests, marshy places, *Poeppig* 1093. Chicoplaya, *Ruiz & Pavón*.

11b. *Centropogon capitatus* var. *Fieldii* E. Wimm., var. nov.

Folia oblongo-elliptica, 19 cm. longa, 7 cm. lata, margine repandodentata, subtus brevissime hirtella; sepala sublinearia 11 mm. longa; corolla coccinea.

Junín: La Merced, montaña, slope near Hacienda Schunke, *Macbride 5662* (type in Herb. Field Mus.).

11c. *Centropogon capitatus* var. *trichandrus* E. Wimm., var. nov.

Folia plano-crenata cum denticulis callosis inter crenas; sepala lineari-lanceolata integra, 10 mm. longa et in medio 1.6 mm. lata; corolla parum minor, 25 mm. longa; antherarum tubus dense violascenter pilosus.

Cuzco: Paucartambo, Valle de Ckosñipata, 800–1,000 meters, *Herrera 9* (type in herb. Berlin).

12. *Centropogon casapiensis* E. Wimm. Repert. Sp. Nov. 29: 66. pl. 116, f. 7. 1931.

Branches pendent, verruculous-scabrous; leaves oblong-lanceolate, 8.5 cm. long, 2.8 cm. wide, acuminate, acute at the base, callous-denticulate, glabrous above, scarcely puberulent beneath; bracts minute, pilose; pedicels 12 mm. long; sepals triangular, 2 mm. long; corolla purple, verruculous-pilose, 23 mm. long (form a); filaments glabrous; anther tube 5 mm. long, pilose on the dorsal side toward the apex.

Amazonas: Chachapoyas, near Casapí, *Mathews 1673* (type in herb. Kew.).

13. *Centropogon comosus* Gleason, Bull. Torrey Club 52: 13. 1925.

A coarsely cinereous-tomentose shrub; petioles stout, 15–30 mm. long; leaf blades thick and firm, elliptic-obovate, the largest 9 cm. long, 5 cm. wide, the upper somewhat reduced, rounded to broadly obtuse and sometimes minutely apiculate at the apex, broadest near the middle or somewhat above it, subcuneate to an obtuse base, minutely denticulate, the upper side scabrellous with stellate hairs, the lower side roughly and densely tomentose with cinereous, branched hairs, especially along the veins; pedicels axillary, stout, 6–8 cm. long; hypanthium broadly hemispheric; sepals linear, 9 mm. long, entire, erect, densely tomentose; corolla brown-tomentose, the tube 38 mm. long, the lobes linear-falcate, strongly decurved, the upper 10 mm. long, the lower shorter; filaments sparsely villous; anther tube 8–9 mm. long; sparsely pilose.

Perhaps in Peru. Ecuador: Prov. Loja, between San Lucas and Oña, 2,200–3,100 meters, *Hitchcock 21545*, type.

14. **Centropogon cornutus** (L.) Druce. Rept. Bot. Exch. Club Brit. Isles 3: 416. 1914. *Lobelia cornuta* L. Sp. Pl. 930. 1753. *L. surinamensis* L. Sp. Pl. ed. 2. 1320. 1763. *L. andropogon* Cav. Icon. 6: 10. *pl.* 515. 1801. *L. spectabilis* HBK. Nov. Gen. 3: 306. 1819. *L. purpurea* Vell. Fl. Flum. 353; Icon. 8: *pl.* 156. 1827. *Siphocampylus macranthus* Pohl, Pl. Bras. Icon. 2: 105. *pl.* 168. 1831. *S. surinamensis* et *S. andropogon* G. Don, Syst. 3: 702 et 703. 1834. *C. surinamensis* Presl, Prodr. Monogr. Lobel. 48. 1836; Paxt. Mag. Bot. 13: 149. *pl.* 1847. *C. fastuosus* Dcne. Ill. Hort. 181. *pl.* 1853. —Other illustrations: Bot. Mag. *pl.* 225; Andr. Bot. Rep. *pl.* 502; Lodd. Bot. Cab. *pl.* 749.

Suffrutescent, 1–1.5 meters high, with slender, climbing branches as much as 3 meters long; leaves oblong or ovate-oblong to elliptic and subobovate-oblong, 14 cm. long, 4 cm. wide, acute or acuminate at both ends or at the base obtuse or subrounded, dentate to denticulate, glabrous or scarcely pubescent, narrowed into a petiole 5–15 mm. long; pedicels puberulent, 3.5–5.5 cm. long, bibracteolate above the base; hypanthium hemispheric; sepals sublinear, denticulate, spreading, 12–15 mm. long; corolla purple, carmine, or pink, glabrous, 4–5 cm. long, the lobes unequal, triangular, falcate, spreading, 10–5 mm. long; filaments glabrous; exserted, anther tube long-hispid, 8 mm. long; berry nearly globose, about 15 mm. in diameter, edible.

Huánuco: Posuso, wooded slope, 600 meters, *4714*.—Loreto: Iquitos, trail to San Juan, sandy soil in forest border, *Mexia 6495*; on shrubs, *Williams 8244, 8243*. Pebas on the Amazon, *Williams 1790*. Lower Río Huallaga, forest of Recreo, *Williams 3693*. Florida, *Klug 2245*. *C. cornutus* is widely distributed: all South America to Valparaíso and on the West Indian Islands. Frequently cultivated. The leaves are boiled and eaten.

14a. **Centropogon cornutus f. leucostomus** E. Wimm., f. nov.

Frutex 1 m. altus glaberrimus; corolla rosea cum limbo albo.

Huánuco: Between Monzón and the Río Huallaga, 600–700 meters, *Weberbauer 3630* (type in herb. Berlin).

14b. **Centropogon cornutus var. laevigatus** (L. f.) E. Wimm., var. nov. *Lobelia laevigata* L. f. Suppl. 392. 1781. *C. laevigatus* A. DC. in DC. Prodr. 7: 344. 1839.

A climbing shrub 2 meters high, commonly quite glabrous; anther tube pilose only at the apex; corolla bright rose.

Loreto: Iquitos, 120 meters, *Williams 1425, 3529*. Mishuyacu, near Iquitos, in forest, 100 meters, *Klug 1186*. Forest near San Francisco, 100 meters, *Tessmann 3567*. Florida, *Klug 2096*. "Gallo-crespa-rango." Huitoto name "puynayma gifire."

15. **Centropogon densiflorus** Benth. Pl. Hartweg. 138. 1844. *C. gracilis* Drake, Journ. de Bot. 3: 238. 1889.

Arborescent, 4-8 meters high, the branches slender, pendent, tuberculate-scabrous; leaves elliptic, often somewhat ovate-elliptic, 11 cm. long, 5.5 cm. wide, very shortly acuminate to the obtuse apex, at the base shortly cuneate to a petiole 10-16 mm. long, remotely glandular-denticulate, glabrous above, subpubescent beneath; bracts sessile, oval; pedicels with calyx and corolla squamulose-pilose, 12 mm. long; hypanthium depressed-globose; sepals ovate-oblong, acutish, suberect, 10 mm. long, 5 mm. wide; corolla (form a) with an inflated throat, orange-red, 3 cm. long, curved; filaments puberulent, exerted; anther tube 8 mm. long, beset along the commissures with short, lilac hairs. Neg. 27222.

Piura: Huancabamba, *André 4401*. Río Cachaco, temperate region, *André 4581*. Ecuador (Yangana), *Hartweg 775*, type.

16. **Centropogon Dombeyanus** (Presl) E. Wimm., comb. nov. *Lobelia Dombeyana* Presl, Prodr. Monogr. Lobel. 39. 1836. *Siphocampylus Dombeyanus* A. DC. in DC. Prodr. 7: 406. 1839.

Branches, leaves beneath, and flowers whitish-tomentose; leaves ovate-oblong, acute, rounded at the base, unequally glandular-toothed, 16 cm. long, 7 cm. wide, glabrous or slightly floccose above; flowers solitary, axillary; pedicels floccose-tomentose, 13 cm. long, bibracteolate at the base; hypanthium obovoid-hemispheric, 18 mm. long and wide; sepals sublinear, gradually tapering to the apex, glandular-denticulate, erect, 27-32 mm. long, 4 mm. wide; corolla (form b) whitish (?), 45 mm. long, about 16 mm. wide at the throat, the 2 upper lobes 27 mm., the 2 lateral 22 mm., the lowest 16 mm. long and 7-8 mm. wide at the base; filament tube tomentose; anther tube densely yellowish-hirsute.—Fruit unknown, the position of this species therefore uncertain!

Junín: Huasa-huasi, *Dombey*, type.

17. **Centropogon erianthus** (Benth.) Benth. & Hook. f. Gen. Pl. 2: 547. 1876. *Siphocampylus erianthus* Benth. Pl. Hartweg. 139. 1844.

A climbing shrub with branches to 5 meters long, ferruginous-tomentose throughout; leaves oblong, acuminate to acute, narrowed to the obtuse base, 7–8 cm. long, 2.5–3.4 cm. wide, callous-denticulate, sparsely stellate-pilose above, densely tomentose beneath, the petiole 8–10 mm. long; flowers solitary in the axils of the upper leaves; pedicels 24–40 mm. long, bibracteolate at the base; hypanthium depressed-globose, with 5 linear, denticulate, suberect sepals 12–15 mm. long; corolla brick-red with a yellow limb, 28–35 mm. long (form a); filaments white-pubescent; anther tube scarcely pilose. Neg. 27224.

Peru: Typical form probably occurring. Ecuador in mountains near Loja, *Hartweg* 778, type; *Poortman* 79.

17a. *Centropogon erianthus* var. *brachysepalus* E. Wimm., var. nov.

Folia aliquanto minora, 8 cm. longa, 2.6 cm. lata; sepala breviora, 3–4 mm. longa.

Amazonas: Chachapoyas, *Mathews* (type in herb. Cambridge).

18. *Centropogon eurystomus* E. Wimm. Repert. Sp. Nov. 29: 60. *pl.* 126, *f.* 4. 1931.

An erect herb about 50 cm. high; leaves lanceolate, 14–17 cm. long, 3.3–3.8 cm. wide, acuminate, narrowed at the base into a petiole 6–20 mm. long, dentate-denticulate, very sparsely hispid above, hispid beneath especially on the veins; bracts lanceolate, sessile, 2–4 cm. long, pubescent; pedicels glabrous, 2 cm. long, bibracteolate near the base; hypanthium semi-ovoid; sepals connate from the base to the middle, glabrous, the free portion narrow-triangular, entire, 10–12 mm. long; corolla rose-colored, glabrous, 43 mm. long, its tube strongly inflated above the middle, the lobes 10–6 mm. long; stamen tube glabrous; anthers 6 mm. long.

Department unknown: Río Bombonasa, on shady slope, *Spruce* (type in herb. Kew).

19. *Centropogon erythraeus* Drake, Journ. de Bot. 3: 237. 1889.

A shrub 2 meters high, densely purple-stellate-tomentose; leaves coriaceous, oval, rounded at both ends, 5 cm. long, 3 cm. wide, the upper leaf surface, at least, glabrate, the petiole stout, 8 mm. long; flowers solitary in the leaf axils; pedicels 3 cm. long; hypanthium hemispheric, with 5 triangular, acute sepals 2–3 mm. long; corolla (form a) purple, falcate, 4 cm. long; stamen tube pilose. Neg. 30941.

Peru: Probably occurring. Ecuador: Cebadal, near Loja, *Poortman* 283.

20. **Centropogon exasperatus** Presl, Prodr. Monogr. Lobel. 48. 1836. *C. angustus* Gleason, Bull. Torrey Club 52: 54. 1925.

Shrubby, sparsely pubescent-scabrellate; leaves lanceolate, 14 cm. long, 2.5 cm. wide, gradually long-acuminate to both ends and narrowed into a petiole 1 cm. long, sharply and minutely dentate, on the veins shortly hairy beneath; pedicels solitary in the axils of the leaves, 6–8 cm. long, puberulent, bibracteolate at the base; hypanthium depressed-globose, puberulent, with 5 narrow-triangular, entire lobes 10 mm. long; corolla red, puberulent, 35 mm. long (form a); stamen tube glabrous; anthers 7 mm. long.

Huánuco: Mountains, *Herb. Presl*. Vilcabamba on Río Chinchao, 1,800 meters, 4967, type of *C. angustus*.

21. **Centropogon Featherstonei** Gleason, Bull. Torrey Club 52: 17. 1925.

Stems climbing, 3–7 meters long, densely tomentose above with ferruginous, branched hairs; petiole 6–8 mm. long; leaves oblong or ovate-oblong, 11 cm. long, 4 cm. wide, acute, rounded at the base, sharply and finely denticulate, above thinly, beneath densely tomentose; pedicels solitary in the upper axils, 6–15 cm. long, bibracteolate above the base; hypanthium depressed-globose, tomentose; sepals linear, denticulate, suberect, 6–7 mm. long; corolla firecracker-red with yellow, stellate pubescence, 3 cm. long (form a); filaments pubescent; anther tube black, 8 mm. long, sparsely pilose distally.

Huánuco: Huánuco, 3,100 meters, 2125.—Junín: Mito, 2,400 meters, 1605, type.

22. **Centropogon ferrugineus** (L. f.) Gleason, Bull. Torrey Club 52: 11. 1925. *Lobelia ferruginea* L. f. Suppl. 394. 1781. *L. barbata* Cav. Icon. 6: 12. pl. 519. 1801. *Siphocampylus barbatus* G. Don, Gen. Syst. 3: 701. 1834. *C. barbatus* Planch. Fl. Serres 6: 16. 1850 (but *Lobelia ferruginea* HBK. Nov. Gen. & Sp. 3: 303. 1819 and *Siphocampylus ferrugineus* G. Don, loc. cit., are referable to *Centropogon asclepiadeus* [Willd.] Wimm.).

Suffrutescent, with pendent branches and a ferruginous, stellate tomentum; petiole 6 mm. long; leaf blades lanceolate, 3–4 cm. long, 0.7–0.9 cm. wide, acute at both ends, callous-denticulate, on the upper surface sparsely stellate, on the lower surface thinly tomentose, on the veins densely so; pedicels solitary in the leaf axils, 3 cm. long,

without bractlets; hypanthium depressed-globose; sepals triangular, 2–3 mm. long, denticulate, suberect; corolla brick-red, tomentellous, about 3 cm. long (form a); filaments pubescent, exserted; anther tube 6 mm. long, with few long dorsal hairs.

Huánuco: Tambo de Vaca, 3,100 meters, 4445.—Lima: Huamantanga, Obrajillo, *Née Herb.*—Amazonas: Chachapoyas (det. Zahlbr.). Colombia; Ecuador.

23. *Centropogon fuscus* (G. Don) E. Wimm. Repert. Sp. Nov. 22: 201. 1926. *Siphocampylus fuscus* G. Don, Gen. Syst. 3: 704. 1834. *Lobelia fusca* Presl, Prodr. Monogr. Lobel. 40. 1836.

Probably a climbing shrub, the branches and flowers with a dense, brown tomentum; leaves ochreous-tomentose on the lower surface, oblong, 12 cm. long, 4 cm. wide, subacute at both ends, the whole margin with nearly intramarginal, glandular teeth; pedicels 8 cm. long, minutely bibracteolate at the base, axillary; hypanthium hemispheric; sepals oblong-linear, subacute, denticulate, reflexed, 9 mm. long, 3 mm. wide; corolla (form a) purple(?), tomentose, straight, 35 mm. long; filaments pubescent; anther tube beset on the fissures with few sordid hairs. Neg. 27226.

Without locality, *Pavón*.—Huánuco: Vitoc, *Isern 2566* (det. Macbride).

23a. *Centropogon fuscus* var. *Gleasonii* E. Wimm. Repert. Sp. Nov. 38: 16. 1935. *C. rufus* Gleason, Bull. Torrey Club 52: 8. 1925, non Wimm.

A shrub 1 meter high with ochreous tomentum, this becoming more greenish-yellowish on the lower surface of the leaves; petiole 12–20 mm. long; leaf blades elliptic, 15 cm. long, 5.6 cm. wide, short-acuminate, acute at the base, callous-denticulate; pedicels 10 cm. long; sepals oblong, acute, 15 mm. long, 5 mm. wide, reflexed; corolla as in the type, but 45 mm. long and with a more yellowish tomentum.

Huánuco: Tambo de Vaca, 300 meters, 4473, type.

24. *Centropogon gamosepalus* A. Zahlbr. Ann. Naturhist. Mus. Wien 6: 434. 1891.

An erect herb, glabrous; leaves obovate-oblong, 17 cm. long, 6 cm. wide, gradually narrowed into a petiole 5–15 mm. long, abruptly acuminate at the apex, subentire or callous-denticulate, inconspicuously puberulent beneath; bracts dense, spatulate or obovate-oblong, 3 cm. long, 1.6 cm. wide, broadly obtuse at the

apex, cuneate to contracted at the base, mostly sessile; pedicels 2 cm. long, bibracteolate above the base; hypanthium hemispheric, its lobes connate to the middle, the free parts narrowly triangular, acute, 6 mm. long; corolla (form a) rose-colored, 37 mm. long, somewhat inflated at the throat; filaments glabrous; anther tube glabrous or beset with few hairs in the fissures, 6 mm. long. Neg. 30952.

Loreto: Tarapoto, *Spruce 4131*, type. Ecuador.

25. *Centropogon gesneraeformis* Drake, Journ. de Bot. 3: 239. 1889.

An erect, stout, pubescent herb; leaves elliptic, 21 cm. long, 8.5 cm. wide, shortly subacuminate, unequally and minutely dentate, acuminate at the base into an indefinite petiole 15–30 mm. long, hispid above, more densely so beneath; flowers in a capitate raceme with a short peduncle; bracts foliaceous, sessile, 15–30 mm. long; pedicels 3–4 cm. long; hypanthium depressed-globose; sepals 4–5 mm. long, narrow-triangular, acute, subdenticulate, erect; corolla (form a) carmine-red, puberulent, 34 mm. long, the lobes 5–3 mm. long; filaments glabrous; anther tube glabrous except for a few hairs at the base. Neg. 30942.

Peru: Probably. Ecuador (Huancabamba near Loja, *Poortman 224*, type); Colombia.

26. *Centropogon gesnerioides* Gleason, Bull. Torrey Club 52: 53. 1925.

Suffrutescent, 3–4 meters high, subhirsute or with slightly curved, white hairs; leaves obovate-oblong to elliptic, the largest 24 cm. long, 8.5 cm. wide, acuminate, dentate or denticulate, acuminate at the base into an indefinite petiole 2–3 cm. long, thinly hirsute above, more densely so beneath especially along the principal veins; racemes terminal, often elongate; floral leaves elliptic, mostly sessile, 2–3 cm. long, 8–16 mm. wide; pedicels 2 cm. long; hypanthium depressed-globose; sepals triangular, 14–16 mm. long, 5 mm. wide at the base, acuminate, sparsely denticulate, suberect; corolla (form a) red, hirsute, especially distally, curved, 3 cm. long; filaments pubescent toward the summit; anther tube 7 mm. long, pilose along the 3 upper commissures.

Peru: Perhaps occurring. Colombia.

26a. *Centropogon gesnerioides* var. *viperinus* E. Wimm. Repert. Sp. Nov. 38: 6. 1935.

A coarse herb 1.2 meters high; bracts lance-oblong, petiolate; sepals narrowly triangular, free, 10–12 mm. long, 3 mm. wide at the base; corolla rich pink, pubescent; stamens glabrous, exserted.

Junín: Huacapistana, thickets and open woods, 1,800–2,400 meters, *Killip & Smith 24096*, type.

26b. *Centropogon gesnerioides* var. *zelana* E. Wimm. Notizbl. Bot. Gart. Berlin 10: 733. 1929.

Calyx lobes somewhat connate (2–3 mm.) at the base, the free parts triangular, entire, 6–8 mm. long; corolla bright red; stamen tube quite glabrous.

Without data: *Raimondi 2610*; *Ruiz & Pavón*.—Huánuco: Muña, 3982.

It is very probable that *C. gesnerioides*, *C. congestus* Gleason, and *C. caninus* are synonymous with *C. hirtus*.

27. *Centropogon gloriosus* (Britton) A. Zahlbr. Bull. Torrey Club 24: 373, 1897. *Siphocampylus gloriosus* Britton, Bull. Torrey Club 19: 373. 1892.

A shrub, densely ochreous-stellate-tomentose; leaves oblong or ovate-oblong, acuminate, rounded at the base, with a petiole 4–5 mm. long, minutely callous-denticulate, 8–14 cm. long, 3–5 cm. wide, scabrous and sparsely pilose above, especially on the veins, densely tomentose beneath; pedicels solitary in the axils of the upper leaves, densely tomentose, 12–15 cm. long; sepals linear-oblong, acute, denticulate toward the tip, 20–24 mm. long, 5–7 mm. wide at the middle, reflexed, tomentose or glabrescent; corolla crimson, 4–5 mm. long, its tube almost equally wide, slightly expanded to the throat, 2 cm. long, 8 mm. wide at the middle, the lobes 22–15 mm. long; filaments pilose; anther tube densely sordid-brownish-pilose; berry globose, tomentose, 2 cm. in diameter.

Peru: Probably. Bolivia.

28. *Centropogon grandicephalus* A. Zahlbr. Bot. Jahrb. 37: 454. 1906.

A stout herb to 1 meter high; leaves large, subsessile, obovate-oblong, short-subacuminate, gradually narrowed to the base, 20–27 cm. long, 6–9 cm. wide, unequally callous-denticulate; raceme abbreviated, the peduncle 2–8 cm. long; bracts sessile, broadly obovate-cuneate, finely serrulate above, 4–5 cm. long, 2–3 cm. wide; sepals connate from the base to the middle, forming a short tube 6 mm. long, the free parts triangular-linear, entire, 8–10 mm. long; corolla

claret-colored, glabrous, 35 mm. long, inflated at the throat (form a); filaments glabrous; anther tube 6 mm. long, pilose in the fissures.

Amazonas: East of Chachapoyas, woods between the rivers Tambos Almirante and Pucatomba, 1,800–1,900 meters, *Weberbauer 4461*.—San Martín: Between Moyobamba and Chachapoyas, *Raimondi 1894*. San Roque 1,400 meters; *Williams 7032*.

29. **Centropogon granulosus** Presl, Prodr. Monogr. Lobel. 49. 1836. *C. cuspidatus* A. DC. in DC. Prodr. 7: 346. 1839.

A suffrutescent climber, the slender stem and peduncles tuberculate and, at least above, often somewhat puberulent; leaves elliptic, ovate-oblong, or obovate-oblong, 11–28 cm. long, 6–14 cm. wide, acute to abruptly acuminate, acute to obtuse at the base, subcrenate to denticulate, rather thick, glabrous or scabrellate; hypanthium depressed-globose or hemispheric; sepals triangular, 3 mm. long; corolla of form a but at the base somewhat dilated, strongly curved, squamulose-hairy or scabrous, red or orange-red, distally yellow, 35 mm. long; filaments pubescent toward the summit; anther tube 10 mm. long, hispid at the base and distally or along the fissures. Neg. 27228.

Cajamarca: Tabaconas Valley near Hacienda Charape, *Weberbauer 6257*. Cochoero, in dense, subandean woods along brooks, *Poeppig*.—Huánuco: Pampayacu, 1,200 meters, *5088*.—Junín: Chanchamayo Valley, 1,500 meters, *Schunke 347, 1582, 1583*. Vitoc, *Isern 2573*. Hacienda de Esperanza, Chanchamayo, *Raimondi 8687*. Between Tarma and Chanchamayo, *Raimondi 2767*. Between Llalla and Pangoa, *Raimondi 1414*, and, without data, *2578*. La Merced, 1,200 meters, *5654, 5088*.—Loreto: Cerro de La Escalera, 1,200 meters, *Ule 6787*.—Puno: Hacienda de San José de Bellavista, *Raimondi 9641*.—San Martín: San Roque, 1,350–1,500 meters, *Williams 2018, 7214, 7693*.—Without locality, *Dombey* (type of *C. cuspidatus* A. DC.).

30. **Centropogon Hartwegi** (Benth.) Benth. & Hook. f. Gen. Pl. 2: 547. 1876. *Siphocampylus Hartwegi* Benth. Pl. Hartweg. 139. 1844.

A shrub with whitish tomentum; leaves elliptic, 10 cm. long, 5 cm. wide, obtuse to subrounded at the apex, rounded at the base, glandular-denticulate, scarcely stellate-pilose above when young, softly whitish-tomentose beneath; flowers axillary, on whitish-tomentose pedicels 5–7 cm. long; hypanthium depressed-globose; sepals lance-linear, obtuse, entire, tomentose without, puberulent

within, 18–21 mm. long, 9 mm. wide; corolla (form a) purple (?), slightly tomentose, curved, 3 cm. long; filaments puberulent, especially on the lower side, exserted; anther tube nearly black, 7 mm. long, sparsely pilose toward the summit. Neg. 27229.

Peru: Probably. Ecuador: In the mountains of Loja, *Hartweg* 777.

31. **Centropogon hirtus** (Cav.) Presl, Prodr. Monogr. Lobel. 48. 1836. *Lobelia hirta* Cav. Icon. 6: 13. pl. 520. 1801. *Siphocampylus hirtus* G. Don, Gen. Syst. 3: 702. 1835.

Hirsute, branched, nearly 2 meters high, suffruticose; petiole 1 cm. long; leaf blades lanceolate, 12–20 cm. long, 3.8–5.2 cm. wide, gradually tapering to both ends, sparsely hirsute above, more densely so beneath; bracts oblong, acute or obtuse, short-petioled, foliaceous, several flowers in the upper leaf axils; pedicels 5–8 cm. long; hypanthium semiglobose; sepals narrow-triangular, erect, 8–12 mm. long, 3 mm. wide at the base; corolla (form a) rich pink, somewhat hirsute, 3 cm. long; stamen tube glabrous; anthers 5 mm. long. Neg. 29443.

Cajamarca: Cochero, *Dombey*.—Huánuco: Mountains of Huánuco, *Herb. Presl*. Ecuador.

32. **Centropogon hypotrichus** E. Wimm., sp. nov.

Caulis vel rami verruculosi, superne saltem puberuli; folia elliptica, 12 cm. longa, 5.5 cm. lata, acuminata, margine denticulata et ciliolata, basi acuta, in petiolum 18 mm. longum attenuata, supra glabra et vernicosa, subtus puberula et ad nervos pubescentia; flores verisimiliter solitarii in axillis foliorum superiorum (in specimine nostro 1 flos tantum adest!); pedicelli 13 mm. longi, basi bibracteolati; hypanthium hemisphericum, 4 mm. longum et 6 mm. latum; sepala triangularia, 3 mm. longa, denticulata, puberula, sinus eorum rotundati; corolla (form a) kermesina, puberula, 45 mm. longa, leviter curva, ad faucem paullum inflata; lobi corollae triangulares, falcati, 2 superiores 7 mm., 3 inferiores 5–4 mm. longi; filamenta subglabra; antherarum tubus 8 mm. longus et 3 mm. latus, pilis lilacinis in fissuris, antherae 2 inferiores cornutae. Neg. 30956.

Huánuco: Tambillo, *Jelski* 59 (type in herb. Mus. Vienna).

33. **Centropogon incanus** (Britton) A. Zahlbr. Bull. Torrey Club 24: 374. 1897. *Siphocampylus incanus* Britton, Bull. Torrey Club 19: 373. 1892.

A stout herb, whitish-tomentose (hairs simple), smelling disagreeably; leaves obovate-oblong, 27 cm. long, 10 cm. wide, abruptly

acuminate, at the base gradually tapering into a stout, indefinite petiole, glabrous above, white-tomentose beneath, floccose in age; flowers solitary and axillary; pedicels floccose, 14–18 cm. long, with 2 linear bractlets above the base; hypanthium obovoid, 18 mm. long, 15 mm. wide; sepals sublinear, subacute, erect, tomentose-floccose on both sides, 36–40 mm. long, 4–5 mm. wide, glandular-denticulate; corolla (form b) yellowish(?), whitish-floccose, 45 mm. long, at the throat 22 mm. wide when pressed, the upper lobes 30, the lateral 18, the lower 12 mm. long; filaments glabrous; anther tube 15 mm. long, densely sordid-gray-brown-hirsute.

Peru: Probably. Bolivia.

34. *Centropogon inflatus* E. Wimm. Repert. Sp. Nov. 29: 60. 1931.

A glabrous herb; leaves lance-oblong, 18 cm. long, 6 cm. wide, acute, gradually tapering at the base into an indefinite petiole about 1 cm. long, the margin finely fringed; bracts lance-oblong, 10–15 cm. long, 5 mm. wide; pedicels 1 cm. long; hypanthium hemispheric; sepals connate into an inflated tube 11 mm. long and 10 mm. wide, its free portions triangular, fringed, 3 mm. long; corolla red, 3 cm. long, at the throat 7 mm. wide when pressed (form a); stamens glabrous; anthers 6 mm. long.

Peru: Without locality, cultivated by Sander and Sons, type.

35. *Centropogon isabellinus* E. Wimm. Repert. Sp. Nov. 19: 245. 1924.

A brown-stellate-tomentose shrub; leaves lanceolate, 13 cm. long, 3.4 cm. wide, acuminate, acute at the base and narrowed into a petiole 15–20 mm. long, the whole margin with glandular, rather intramarginal teeth, glossy and glabrous above, shortly and densely isabelline-tomentose beneath; flowers axillary; pedicels 9–12 cm. long, with 2 subulate bractlets borne above the base; hypanthium semi-ovoid, 12–20 mm. wide; sepals sublinear, 30 mm. long, 3–4 mm. wide, tapering to the blunt apex, denticulate toward the tip, somewhat spreading, corolla (yellowish?) subtomentose, 55 mm. long (form b); filaments villous, adnate to the corolla at the base; anther tube 17 mm. long, 7 mm. wide, densely hirsute in the fissures.

Cuzco: Lucumayo Valley, 3,600 meters, *Cook & Gilbert 1274*, type.

36. *Centropogon latifolius* E. Wimm. Repert. Sp. Nov. 38: 7. 1935.

An erect, glabrous herb 60–90 cm. high; leaves broadly oval, 12 cm. long, 8 cm. wide, rounded at both ends, at the apex shortly

abrupt-acuminate, callous-denticulate, the petiole 5–10 mm. long; bracts lanceolate to sublinear; pedicels 20–25 mm. long; sepals 4 mm. long, subulate, erect; corolla orange-red, yellow distally, 26 mm. long (form a); filaments, especially above, pubescent; anther tube 6 mm. long, pilose on the fissures.

Junín: Pichis Trail, Porvenir, in dense forest, 1,500–1,900 meters, *Killip & Smith 25918*, type.

37. **Centropogon longifolius** E. Wimm. Repert. Sp. Nov. 19: 246. 1924.

Suffrutescent, ferruginous-tomentose; petiole 5 mm. long; leaves lanceolate, 9 cm. long, 2 cm. wide, acuminate, subrounded at the base, callous-denticulate; sepals triangular, acuminate, denticulate, 2–3 mm. long; corolla red(?), subtomentose, 5 cm. long (form a); filaments pubescent; anther tube 9 mm. long, sparsely hirsute. Neg. 30959.

Junín: Huanacabra, *Mathews 1186*, type.

38. **Centropogon longipetiolatus** E. Wimm. Repert. Sp. Nov. 26: 5. 1929.

Leaves elliptic, oblong, or subovate-oblong, 8–9.5 cm. long, 3–3.5 cm. wide, acuminate, acute at the base, narrowed into a petiole 2–5 cm. long, subcrenate and between the crenations denticulate, shining and glabrous above, slightly puberulent beneath; pedicels about 4 cm. long, puberulent, with 2 sublinear bractlets 1 cm. long above the base; sepals 2 cm. long, sublinear, denticulate, puberulent, somewhat spreading; corolla red, very sparsely puberulent, 42 mm. long, the tube 35 mm. long, gradually dilated to the throat (14 mm.), the lobes triangular, falcate, 10–7 mm. long; stamens glabrous; anthers 9 mm. long.—Flower and leaf figured, Repert. Sp. Nov. 22: *pl. 32, f. 7*. Neg. 27232.

Amazonas: Andes of Chachapoyas, *Mathews*, type.

39. **Centropogon loretensis** E. Wimm., sp. nov.

Herba glabra erecta, verisimiliter ramis elongatis vel subscandentibus; folia alterna, membranacea, luteo-viridia, obovato-oblonga, 17–27 cm. longa, 5–10 cm. lata, apice breviter et abrupte fere acuminate, ad basin longe cuneata et in petiolum 2 cm. longum attenuata, margine crenata, nervi laterales sub angulo semirecto arcuatim ascendentes; flores in racemo sublaxo, 20 cm. longo, bracteato; bracteae lanceolatae, acutae, pedicellum fere aequantes; pedicelli ca. 25 mm. longi, glabri, basi minute bibracteolati; hypanthium

semi-ovoideum, 5 mm. longum et latum; sepala sublinearia, 5 mm. longa, subintegra, erecta, sinus inter ea rotundati; corolla 4 cm. longa, purpurea, versus apicem aurantiaca, tubus corollae supra basin parum constrictus (3 mm.) dein paullum sensim ampliatus et valde curvatus, ad faucem ca. 9 mm. latus; lobi triangulari-lineares, falcati, 2 superiores 10, 3 inferiores 6–5 mm. longi; filamenta in tubum angustum connata, pubescentia, 4 cm. longa; antherarum tubus flavo-cinereus, in commissuris pilis longiusculis lutescentibus praeditus, 8 mm. longus; antherae 2 inferiores apice appendice triangulari munitae; stigma bilobum, lobi subrotundi, divaricati.—*C. granuloso* affinis.

Loreto: Forest below Pongo de Manseriche, 155 meters, *G. Tessmann* 3906 (type in herb. Berlin).

40. **Centropogon luteus** E. Wimm. Repert. Sp. Nov. 19: 247. 1924. *C. aurantiacus* Gleason, Bull. Torrey Club 52: 7. 1925. *C. Caoutchouc* Gleason, loc. cit. saltem p. p.

Suffrutescent, with climbing branches, glabrescent below, ochreous-tomentose above; leaves elliptic, 11–17 cm. long, 5–7 cm. wide, abruptly short-acuminate at the apex, acute to subrounded at the base, narrowed into a petiole 11–15 mm. long, subentire or callous-denticulate, the upper surface thinly and minutely stellate-pilose, the lower thinly and on the veins densely cinereous-ochreous-stellate-tomentose; pedicels axillary, 3–6 cm. long, bibracteolate at the base; hypanthium depressed-globose, tomentose; sepals sublinear, 10–17 mm. long, tapering regularly to the tip, entire or few-denticulate, thinly tomentose, erect; corolla 4 cm. long, yellow or orange-red without, yellow within, thinly stellate-pilose (form a); filaments pubescent; anther tube 8 mm. long, beset with long, sordid hairs, or glabrate.

Huánuco: Muña, trail to Tambo de Vaca, among shrubs, 2,300 meters, 4306. Colombia; Ecuador.

41. **Centropogon Macbridei** Gleason, Bull. Torrey Club 52: 18. 1925.

Stem shrubby, climbing, 5 meters long, densely ferruginous with stellate tomentum when young; petiole stout, 9–15 mm. long; leaf blades elliptic-oblong to elliptic-rhomboid, 10–12 cm. long, 4–4.5 cm. wide, subacuminate, cuneate to the base, callous-denticulate, the upper surface rough with stellate pubescence, thinly so on the surface, densely so along the midvein, similarly pubescent on the lower surface and with rows of crowded hairs on the veins and

veinlets; pedicels 7–11 cm. long, tomentose, minutely subulate-bracteolate near the base; sepals linear-triangular, 12–15 mm. long, tomentose, with a few minute, callous teeth, suberect; corolla orange-red without, yellow within, about 45 mm. long (form a); filaments pubescent; anther tube 9–10 mm. long, glabrous or with scattered hairs on the connectives.

Huánuco: Huacachi, near Muña, 2,000 meters, 4183, type. Colombia.

42. *Centropogon macrophyllus* (G. Don) E. Wimm. Notizbl. Bot. Gart. Berlin 10: 733. 1929. *Siphocampylus macrophyllus* G. Don, Syst. 3: 704. 1834. *Lobelia macrophylla* Presl, Prodr. Monogr. Lobel. 39. 1836. *C. amplifolius* Vatke, Linnaea 38: 716. 1874.

A stout, nearly glabrous, erect herb; leaves obovate-oblong, 22 cm. long, 7–10 cm. wide, short-acuminate, long-cuneate into an indefinite petiole about 2 cm. long, subentire with callous teeth, glabrous or beneath inconspicuously puberulent; bracts oblanceolate-linear to linear, 15–27 cm. long; pedicels 15–30 mm. long, glabrous or puberulent; sepals 10–16 mm. long, entire, erect, sublinear; corolla rose-colored, glabrous, 3–4 cm. long (form a); filaments puberulent toward the summit; anther tube pilose at the base, 6 mm. long. Neg. 29444.

Peru: Without data, *Pavón*; *Warscewicz* 10.—Huánuco: Cochero, *Poeppig* 1093 (type of *C. amplifolius*). Colombia.

42a. *Centropogon macrophyllus* f. *minoratus* E. Wimm., f. nov.

In omnibus partibus minor; pedicelli 12–15 mm. longi; sepala 7 mm. longa; corolla 28 mm. longa; antherae pilosae, 5 mm. longae.

Junín: Chanchamayo Valley, 1,200 meters, *Schunke* 1778 (type in Herb. Field Mus.).

43. *Centropogon Mandonis* A. Zahlbr. Ann. Hofmus. Wien 6: 438. 1891.

Suffrutescent, with ferruginous-tomentose branches; petioles 6–8 mm. long, tomentose; leaf blades lance-oblong, 10–12 cm. long, 3–4 cm. wide, subacuminate, acute at the base, densely callous-denticulate, above rough with sparse, stellate hairs, beneath subtomentose on the midrib and veins; pedicels axillary, 12–14 cm. long, tomentose, bibracteolate above the base; hypanthium nearly globose, about 1 cm. in diameter; sepals lanceolate or ovate-oblong,

15–25 mm. long, 4–8 mm. wide, acute, denticulate, erect; corolla (form b) red, scarcely tomentose, 35 mm. long, at the throat 12 mm. wide when pressed, the lobes 22–16 mm. long; filaments adnate to the corolla base, pubescent toward the upper portion; anther tube densely hirsute, 15 mm. long. Neg. 9098.

Puno: Between Sandía and Cucuyo, bushes near the river, 2,800 meters, *Weberbauer* 880. More frequent in Bolivia.

44. *Centropogon nervosus* E. Wimm. Bull. Torrey Club 52: 13. 1925.

A tall shrub with whitish-yellowish tomentum; leaves oblong-elliptic, 21 cm. long, 7 cm. wide, tapering regularly to an acute or subacuminate apex, cuneate to a petiole 15–25 mm. long, callous-denticulate, both surfaces thinly stellate-pilose, more densely so along the veins, the lateral veins numerous, 4–5 mm. apart, almost straight, ascending; pedicels axillary, 4–7 cm. long, bibracteolate above the base; sepals triangular, 3 mm. long, entire; corolla 4 cm. long, red, tomentose (form a); filaments and anthers glabrous.

Cuzco: Lucumayo Valley, 1,800–3,600 meters, *Cook & Gilbert* 1374, type.

45. *Centropogon ostrinus* E. Wimm. Repert. Sp. Nov. 29: 67. 1931.

A climbing, suffrutescent plant with pendent branches, quite glabrous; petiole 5 mm. long; leaves ovate-rounded to oval-rounded, 4.5 cm. long, 3.5 cm. wide, rounded at both ends, slightly crenate, pale beneath; flowers in an elongate raceme; bracts round, about 2 cm. long; pedicels 3–4 cm. long; hypanthium hemispheric; sepals 9 mm. long, 2–3 mm. wide, linear, obtuse, undulate, reflexed; corolla (form a) purple, 32 mm. long; filaments glabrous, exserted; anther tube 6 mm. long, glabrous, gray-blue and purple-striate.

Peru: Without locality, *Leau*.

46. *Centropogon parvulus* Gleason, Bull. Torrey Club 52: 56. 1925.

Branches climbing, faintly striate and scabrous-pubescent; petiole stout, puberulent, 4 mm. long; leaf blade oblong-lanceolate or narrowly oblong-elliptic, 8–12 cm. long, 2.5–3.5 cm. wide, acuminate, sharply dentate, gradually tapering to an acute base, glabrous above, minutely puberulent on the veins beneath; pedicels 15–25 mm. long; hypanthium semi-ovoid; sepals triangular, 3 mm. long, glabrous; corolla 33 mm. long, yellow, red toward the base, scabrellate (form a);

filaments pubescent toward the summit; anther tube hirsute with pale yellow hairs.

Huánuco: Cushi, in forest, 1,500 meters, 4848, type.

47. **Centropogon perlongus** Gleason, Bull. Torrey Club 52: 19. 1925.

A tall shrub, densely tomentose with fulvous hairs, glabrescent in age; petiole 15 mm. long; leaf blades ovate-lanceolate or oblong-lanceolate, those subtending the flowers 11–19 cm. long, 3.5–5 cm. wide, acute or subacuminate, obtuse to subrotund at the base, prominently callous-denticulate, thinly fulvous-stellate on the upper surface, more densely so on the principal veins, beneath pale green, thinly cinereous-stellate on the surface, densely so on the veins; pedicels axillary, 13–15 cm. long, tomentose, bibracteolate above the base; hypanthium short-cylindric, 12 mm. long and wide, densely fulvous-stellate; sepals linear, 25–40 mm. long, 2–3 mm. wide, remotely callous-denticulate, spreading to reflexed; corolla 5 cm. long, tomentose, the lobes all strongly deflexed, the upper pair 22 mm. long; filaments villous; anther tube 1 cm. long, strongly hirsute with yellow hairs in the fissures, especially distally; berry broadly ellipsoid, 3 cm. long, crowned by the persistent sepals, 5–6 cm. long.

Cuzco: Lucumayo Valley, 1,800–3,600 meters, Cook & Gilbert 1355, type.

48. **Centropogon pilosulus** E. Wimm. Notizbl. Bot. Gart. Berlin 10: 732. 1929. *C. pamplonensis* E. Wimm. var. *peruvianus* E. Wimm. op. cit. 734.

A suffrutescent, pilose herb; petioles 5 mm. long; leaves oval, 10 cm. long, 6 cm. wide, acute, subrotund at the base, callous-denticulate, glabrous and shining above, pale and hirsute beneath; flowers in a short, terminal raceme; bracts elliptic, acute, sessile, about 1 cm. long; pedicels 20–25 mm. long; sepals sublinear, 8–11 mm. long, 2 mm. wide, acute, subdenticulate, suberect; corolla orange-red 32 mm. long (form a); filaments glabrous; anther tube 7–8 mm. long, short-pilose.

Cajamarca: Prov. Jaén, Chirinos, *Raimondi* 658. Prov. Hualgayoc, montaña de Nanchó, orilla de un riachuelo, 2,400 meters, *Raimondi* 4597.

49. **Centropogon Planchonis** A. Zahlbr. Repert. Sp. Nov. 14: 133. 1915. *C. pedicellaris* Gleason, var. *gallerensis* Gleason, Bull. Torrey Club 52: 58. 1925.

An herb 0.9–1.2 meters high, few-branched; leaves elliptic-oblong, 17–29 cm. long, 4.5–7.2 cm. wide, gradually tapering to both ends, with an acute apex, narrowed into a petiole 12–15 mm. long, crenate, with callous teeth between the crenations, thin, glabrous, somewhat glossy; flowers in a short, terminal raceme; bracts foliaceous, 4–1 cm. long, puberulent; pedicels 15–20 mm. long, puberulent, minutely bibracteolate at the base; sepals sublinear, 5–8 mm. long, erect with recurved apex, entire or subdenticulate, puberulent; corolla 36–43 mm. long, puberulent (form a); filaments glabrous; anther tube 7–8 mm. long, hirsute.

Loreto: Balsapuerto, lower Río Huallaga basin, dense forest, 150–350 meters, *Killip & Smith 28342, 28648*. Pebas on the Amazon River, *Williams 1695, 1788, 1793, 1904, 1929*. Colombia.

50. *Centropogon Preslii* E. Wimm. Repert. Sp. Nov. 19: 248. 1924.

A climbing shrub, ferruginous-tomentose, with slender branches; petioles 4–5 mm. long; leaves ovate-oblong, 5–7 cm. long, 2–2.5 cm. wide, rotund to subcordate at the base, callous-denticulate, sparsely stellate-pilose above, densely tomentose beneath; flowers axillary; pedicels 2–5 cm. long, tomentose, bibracteolate at the base; sepals linear, 5–7 (11) mm. long, denticulate, suberect; corolla red, 32 mm. long (form a); filaments puberulent; anther tube sparsely hirsute distally or glabrous. Neg. 27238.

Peru: "In montibus Tunguragua," *Herb. Presl* (probably an error).—Junín: Camino de Vitoc a los altos de Palca, *Isern 2297*. Ecuador (Andes of Quito, *Spruce 5022, Jameson 492*).

51. *Centropogon puerilis* E. Wimm. Repert. Sp. Nov. 29: 68. 1931.

A glabrous shrub to 2 meters high; petiole 1 cm. long, slender; leaf blades oblong-elliptic to ovate-oblong, 5–6 cm. long, 2–3 cm. wide, acuminate or acute, obtuse or rounded at the base, sharply dentate; pedicels 35–45 mm. long, with 2 bractlets near the base; hypanthium hemispheric, 7 mm. wide; sepals linear, 10–13 mm. long, few-denticulate, reflexed; corolla (form a) rose-colored, 36–40 mm. long; filaments glabrous; anther tube 7 mm. long, hirsute.

Peru: Without locality, *Mathews 1670*.—San Martín: Zepelacio, near Moyobamba, mountain forest, 1,200–1,600 meters, *Klug 3398*.

52. *Centropogon pulcher* A. Zahlbr. Bot. Jahrb. 37: 451. 1906.

A climbing shrub with pendent branches; petioles glabrous, 8–15 mm. long; leaves ovate-oblong to oblong, 7–9.5 cm. long,

2.5–4 cm. wide, short-acuminate, acute at the base, subrenate, glabrous; hypanthium hemispheric; sepals linear, 4 mm. long, subdenticulate, erect; corolla red, puberulent, curved, 3 cm. long (form a); filaments pubescent; anther tube long-pilose in the 3 upper fissures.

Junín: Prov. Tarma, mountains east of Haucapistana, among bushes, 2,000 meters, *Weberbauer 2164*, type.

53. *Centropogon reticulatus* Drake, Journ. de Bot. 3: 238. 1889.

An erect, glabrous herb; leaves elliptic, 9 cm. long, 4 cm. wide, subacuminate, acute at the base and narrowed into a petiole 15–24 mm. long, minutely denticulate, beneath reticulate-venose, pale; pedicels axillary, shorter than the subtending leaves, 6 cm. long, bibracteolate at the base; hypanthium depressed-globose; sepals triangular, acuminate, entire, somewhat spreading, 3 mm. long; corolla (form a) 3 cm. long, violet, the upper lobes 11 mm. long, the lower 6–4 mm. long; filaments puberulent, exserted; anther tube 7 mm. long, glabrous. Neg. 30945.

Peru: Probably. Ecuador, near Loja, *André*.

54. *Centropogon roseus* Rusby, Bull. N. Y. Bot. Gard. 8: 123. 1912.

An herb 1.2 meters high; leaves lanceolate or somewhat obovate-lanceolate, 15–30 cm. long, 5–8 cm. wide, subacuminate, the margin with dense, sharp, salient teeth, gradually narrowed into the indefinite petiole, glabrous; bracts foliaceous, 25–40 mm. long; pedicels 25–30 mm. long; hypanthium hemispheric; sepals connate for 7 mm., the free parts ovate, densely salient-denticulate, 3–4 mm. long; corolla (form a) rose-colored, glabrous, 35 mm. long, strongly curved; stamens glabrous.

Peru: Probably occurring. Bolivia (Dept. La Paz, Tumupasa, *Williams 584*).

55. *Centropogon rufus* E. Wimm. Repert. Sp. Nov. 19: 249. 1924.

A shrub 2 meters high, with dense, reddish-yellowish tomentum; petioles stout, 15–25 mm. long; leaves elliptic, 12 cm. long, 5 cm. wide, acuminate, narrowed to the rounded or obtuse base, subtire with minute, callous teeth, stellate on the upper surface or glabrescent, densely greenish-yellow-tomentose on the lower surface; pedicels axillary, rufous-tomentose, 8–10 cm. long, bibracteolate near the base; hypanthium broadly depressed-globose; sepals lanceolate, 14–18 mm.

long, 4 mm. wide, acuminate, entire, spreading; corolla (form a) yellow, tomentose, 4 cm. long; filaments exerted, pubescent; anther tube 6 mm. long, sparsely pilose, especially distally.

Libertad: Prov. Pataz, Valley of the Mixiollo, a left branch of the Huallaga, 2,100–2,200 meters, *Weberbauer 7044*, type.

56. *Centropogon scabiosus* E. Wimm. Repert. Sp. Nov. 19: 388. 1924.

Suffrutescent, ferruginous-stellate-pilose and rough; leaves lanceolate, 9–15 cm. long, 2.5–4.5 cm. wide, acuminate, acute at the base, narrowed into a petiole 1 cm. long, regularly callous-dentate, sparsely stellate on the upper surface, densely so on the lower surface, especially on the veins; flowers axillary; pedicels 5–6 cm. long, without bractlets, shorter than the subtending leaves; sepals broadly triangular, entire, acuminate, 2 mm. long; corolla red (?), stellate-pilose, 45 mm. long (form a), the lobes 12–7 mm. long; stamen column glabrous; anthers 8 mm. long.

Amazonas: Prov. Chachapoyas, in the Andes, *Mathews*, type.

57. *Centropogon sciaphilus* A. Zahlbr. Ann. Hofmus. Wien 6: 435. 1891. *C. ciliatus* Gleason, Bull. Torrey Club 52: 58. 1925.

An erect, glabrous herb 30–90 cm. high; leaves obovate-oblong, rarely rather oblong, 15–24 cm. long, 4.7–5.5 cm. wide, abruptly acuminate, cuneate at the base into an indefinite petiole as much as 8 mm. long, sharply and finely denticulate-ciliate with subulate, callous teeth; inflorescence a short raceme, often subcapitate; floral leaves ovate-oblong, 10–18 mm. long, acuminate, sessile, ciliate-denticulate; pedicels 10–30 mm. long; sepals narrowly triangular, 8–10 mm. long, denticulate, suberect; corolla (form a) vermilion or bright red, 3 cm. long, inflated at the throat; filaments yellow, glabrous, not exerted; anther tube green, 7 mm. long, densely hirsute on the 3 dorsal commissures with purplish hairs. Neg. 30966.

Peru: Without locality, in the subandean, gloomy and damp forest, *Poeppig 1651*, type.—Huánuco: Muña, dense forest, 3,100 meters, *4028* (type of *C. ciliatus*).—Junín: Between Azupizú and Santa Rosa, dense forest, 625 meters, *Killip & Smith 26146*. Puerto Bermúdez, 375 meters, *Killip & Smith 26672, 26581*.

58. *Centropogon silvaticus* E. Wimm. Repert. Sp. Nov. 38: 6. 1935.

An erect, glabrous herb 50 cm. tall; leaves lanceolate, 8–10.5 cm. long, 0.8–1.2 cm. wide, subacuminate, narrowed into a petiole

5–7 mm. long, callous-denticulate; flowers axillary, crowded at the summit, surpassed by the subtending leaves; pedicels 2–3 cm. long; hypanthium semiovoid; sepals connate at the base for 8–10 mm., the free parts triangular, subacuminate, entire, 10 mm. long, at the base 3–4 mm. wide; corolla (form a) blood-red, with white limb, 35 mm. long, inflated at the throat; filaments glabrous; anther tube 6–7 mm. long, pilose on the dorsal portion toward the summit.

Loreto: Balsapuerto, in forest, about 220 meters, *Klug 3062*, type.

59. *Centropogon subandinus* A. Zahlbr. Repert. Sp. Nov. 14: 141. 1915.

Suffrutescent or herbaceous, to 1.3 meters high, glabrous; leaves elliptic-lanceolate, rarely ovate-oblong, 7–15 cm. long, 3–5 cm. wide, acuminate, at the base acutely narrowed into a petiole 2–3 cm. long, finely fimbriate-dentate; flowers axillary; pedicels 8–14 cm. long, bibracteolate at the base; hypanthium short-cylindric, truncate at the base; sepals triangular-linear, 8–10 mm. long, callous-denticulate, erect; corolla bright red with a whitish limb, 42–53 mm. long (form a), on the lower side somewhat ventricose; stamens glabrous, long-exserted; anther tube 10 mm. long, grayish blue.—Spruce described the flower as “sordid purple” and the plant as a “3-pedale, sub-simple herb.” Neg. 27242.

Junín: Llalla, in forest, *Spruce 6048*. Pangoa, *Spruce*. Ecuador.

60. *Centropogon subcordatus* A. Zahlbr. Repert. Sp. Nov. 14: 140. 1915.

A shrub with stellate-tomentose, ferruginous branches; leaves with a stout petiole 6–7 mm. long, ovate, 3.5–7 cm. long, 1.8–4 cm. wide, acute, subcordate at the base, rarely rounded or subacute, callous-denticulate, sparsely stellate above, densely tomentose beneath; pedicels axillary, to 8 cm. long, tomentose; sepals triangular, 3 mm. long; corolla (form a) brick-red, ferruginous-tomentose, 34 mm. long; filaments pubescent; anther tube violet-blue, glabrous or with a few hairs distally.

Huánuco: Huánuco, 2125 (det. Gleason). Ecuador; Colombia.

61. *Centropogon Tessmannii* E. Wimm. Repert. Sp. Nov. 26: 8. 1929.

An herb 20–30 cm. high, sparsely villous, with creeping root; petiole 8–35 mm. long; leaf blades ovate-elliptic, 12 cm. long, 6 cm. wide, acute, rotund or acute at the base, doubly repand-dentate

to denticulate, thin, sparsely villous above, more densely so beneath, especially on the veins; flowers axillary; pedicels 22–27 mm. long, subvillous; hypanthium turbinate; sepals subulate, spreading, 5 mm. long; corolla crimson, subvillous, 6 cm. long, its tube 5 cm. long, narrowed in the lower portion, 4 mm. wide when pressed, in the upper portion gradually expanded to 10 mm., at the throat again somewhat narrowed, the lobes triangular and subfalcate, 10–5 mm. long, 4 mm. wide; filaments glabrous, included; anther tube 8 mm. long, pilose distally with lilac hairs. Neg. 9093.

Loreto: Rain forest at the mouth of Río Santiago, 160 meters, *Tessmann 4249*, type. Right bank of Río Santiago, *Mexia 6229*.

61a. *Centropogon Tessmannii* var. *tenuiflorus* E. Wimm. Repert. Sp. Nov. 29: 69. 1931.

Leaves elliptic, rarely subovate; pedicels 2.5–3 cm. long; flowers smaller and more slender; sepals 3 mm. long; corolla 43 mm. long, at the constricted part 2 mm., toward the summit 8 mm. wide, the lobes only 5 mm. long.

Peru: In damp forest on Río Bombonasa, *Spruce 4961*, type.

62. *Centropogon umbrosus* E. Wimm. Repert. Sp. Nov. 19: 250. 1924.

Suffrutescent, scarcely branched, 1 meter high, pilose; petiole 10–15 mm. long; leaf blades elliptic, 13–18 cm. long, 5–8 cm. wide, acuminate, acute to acuminate at the base, callous-denticulate, pilose; flowers in a dense, terminal corymb; bracts sublinear, acute, 12–24 mm. long; pedicels 4–5 cm. long, bibracteolate near the base; sepals triangular, acute, suberect, 3 mm. long; corolla (form a) purple, puberulent, 25 mm. long, falcate, the lobes 6–4 mm. long; filaments puberulent; anther tube rather glabrous or with a few hairs toward the summit.

Ayacucho: Prov. Huanta, road from Tambo via Osno to the Río Apurímac, 2,600–2,700 meters, *Weberbauer 5616*, type.

63. *Centropogon urubambae* E. Wimm. Repert. Sp. Nov. 38: 7. 1935.

A glabrous shrub with climbing, slender, pendent branches; leaves oblong, 4.5 cm. long, 1.5 cm. wide, acute, narrowed to a petiole 1 cm. long, flat-crenate, interspersed with callous teeth; inflorescence racemose, lax, long; bracts lanceolate, petioled; pedicels 3 cm. long; hypanthium depressed-globose, 7 mm. in diameter; sepals linear, 6–7 mm. long, divaricate and toward the apex again

ascending; corolla crimson, 33 mm. long (form a); filaments glabrous; anther tube 7 mm. long, lilac-pilose in the fissures.

Junín: Colonia Perené, 680 meters, *Killip & Smith 25048*. La Merced, thickets, 700 meters, *Killip & Smith 23762*. Pichis Trail, 1,350–1,600 meters, *Killip & Smith 25474*.—Cuzco: Urubamba Valley, San Miguel, mountain Nucja, 1,800 meters, *Cook & Gilbert 942*. Urubamba Valley, 2,050 meters, *Herrera 2682b*.

63a. *Centropogon urubambae* var. *estrellanus* E. Wimm. Repert. Sp. Nov. 38: 8. 1935.

Leaves broadly elliptic, 10 cm. long, 7 cm. wide, rounded at the apex, at the base broadly cuneate to a petiole 15–20 mm. long; pedicels 10–15 mm. long; corolla somewhat smaller.

Ayacucho: Estrella, between Huanta and Río Apurímac, dense forest, 500 meters, *Killip & Smith 22643*, type.

64. *Centropogon verbascifolius* (Presl) Gleason, Bull. Torrey Club 52: 18. 1825. *Lobelia verbascifolia* Presl, Prodr. Monogr. Lobel. 38. 1836. *Siphocampylus verbascifolius* A. DC. in DC. Prodr. 7: 402. 1839. *C. cinereus* Gleason, op. cit. 15. *C. cinereus* f. *odontosepalus* E. Wimm. Repert. Sp. Nov. 29: 75. 1931.

A shrub 2 meters high, cinereous-ochreous-tomentose; petiole stout, 15–30 mm. long; leaf blades elliptic to ovate-elliptic, 10–15 cm. long, 5–7 cm. wide, short-acuminate, broadly cuneate to sub-rounded at the base, callous-denticulate, sparsely stellate-pilose above, stellate-tomentulose on the surface, tomentose on the veins beneath; pedicels from the upper axils, 2–5 cm. long, bibracteolate at the base; hypanthium broadly hemispheric; sepals linear, 7–9 mm. long, denticulate, suberect; corolla (form a) brick-red, with yellow limb, tomentulose, 35–40 mm. long; filaments thinly pubescent; anther tube 8 mm. long, pilose on the fissures distally.

Peru: Without data, *Herb. Presl*, type.—Junín: Carapata, above Huacapistana, edge of forest, 2,700–3,500 meters, *Killip & Smith 24376*. Prov. Tarma, mountains west of Huacapistana, among bushes, 2,500–2,600 meters, *Weberbauer 2184*. Valle de Vitoc, *Isern 2566*. Colombia.

65. *Centropogon vernicosus* A. Zahlbr. Ann. Hofmus. Wien 6: 440. 1891.

Suffrutescent, pilose above; leaves oblong-elliptic, 12–15 cm. long, 5–7 cm. wide, acuminate at both ends and at the base narrowed into a petiole 10–12 mm. long, glabrous, glossy on the upper surface,

paler and pubescent on the lower surface; flowers in an elongate raceme; rachis of the inflorescence ferruginous-pilose; bracts sessile, lanceolate, pubescent, 20–30 mm. long, 4–6 mm. wide; pedicels about 2 cm. long, bibracteolate at the base; hypanthium broadly hemispheric; sepals linear, 15–17 mm. long, denticulate, suberect; corolla (form a) red(?), pubescent, 35 mm. long, subcurved; filament column glabrous; anther tube densely hirsute. Neg. 30970.

Huánuco: Tambillo, *Jelski* 78, type.

66. *Centropogon viriduliflorus* E. Wimm. Repert. Sp. Nov. 38: 16. 1935.

A shrub to 4 meters tall, ferruginous-stellate-tomentose; leaves linear-lanceolate, 13 cm. long, 2 cm. wide, acuminate, at the base subobtusate, the petiole 2–5 mm. long, the margin callous-denticulate, glabrous above, tomentose beneath; flowers axillary; pedicels 11–13 cm. long, floccose-tomentose, with 2 linear bractlets below the middle, 13 mm. long; hypanthium urceolate-cylindric, 15 mm. long, 10 mm. wide; sepals linear, acute, 27–32 mm. long, 2 mm. wide, callous-denticulate, at first spreading, afterward reflexed; corolla (form b) greenish, 52 mm. long, 10 mm. wide, the lobes longer than the (20 mm. long) tube, sublinear, falcate, 38–27 mm. long, 3–4 mm. wide; filaments pubescent; anther tube 10 mm. long, densely brownish-pilose.

Cuzco: Marcapata, 3,300 meters, *Weberbauer* 7795, type.

67. *Centropogon Weberbaueri* A. Zahlbr. Bot. Jahrb. 37: 453. 1906.

A shrub to 2 meters high, densely ferruginous-tomentose; leaves lanceolate, 7–12 cm. long, 2–3 cm. wide, acuminate, callous-denticulate, acute to obtuse at the base, sparsely stellate above, ochreous-pilose beneath; flowers axillary; pedicels 5–12 cm. long; sepals linear-lanceolate, 15 mm. long, at the middle 3 mm. wide, slightly narrowed to the base, divaricate, denticulate near the tip; corolla (form a) brick-red(?), tomentose, 35–40 mm. long; filaments puberulent; anther tube 8 mm. long, pilose in the fissures.

Huánuco: Prov. Huamalíes, mountains southwest of Monzón, 3,400–3,500 meters, *Weberbauer* 3247, type.

68. *Centropogon*(?) *Weddellii* E. Wimm. Repert. Sp. Nov. 26: 11. *pl.* 71, *f.* 9. 1929.

Apparently a shrub 1–2 meters high, brown-pilose; petiole stout, 1 cm. long; leaves ovate, 5 cm. long, 3–3.5 cm. wide, subacute,

truncate to subrounded at the base, the margin revolute and glandular-denticulate, on the upper surface wrinkled, glossy, glabrous, on the lower surface reticulate and densely pilose; flowers axillary; pedicels 4 cm. long, bibracteolate at the base; hypanthium broadly turbinate; sepals sublinear, obtuse, suberect to spreading, subdenticulate, 6 mm. long; corolla greenish, with purplish hairs, within pale and glabrous, its tube 8 mm. long, at the middle somewhat narrowed, the lobes triangular-linear, 10–6 mm. long; filament column glabrous; anther tube 6 mm. long, black-cinereous and brown-striate, glabrous, somewhat pilose distally; 2 lower anthers with fulvous, villous hairs at the apex.—Perhaps this is rather a species of *Burmeistera*.

Puno: Prov. Carabaya, in the mountains near Quiaca, *Weddell 4646*, type.

69. *Centropogon yungasensis* Britton, Bull. Torrey Club 19: 371. 1892.

A climbing shrub, often with pendent branches; leaves glabrous, oblong to elliptic, 9–11 cm. long, 3.7–5.5 cm. wide, subacuminate with an obtuse apex, obtuse or subrounded at the base, with a short, marginate petiole, flat-crenate or slightly repand-denticulate; flowers in a short or elongating raceme; bracts small, elliptic or minute; pedicels 2–4 cm. long; hypanthium hemispheric; sepals linear, obtuse, spreading to reflexed, 6–8 mm. long; corolla scarlet-red (distally yellowish?), scabrellate or glabrous, 35 mm. long, falcate (form a); filaments glabrous; anther tube 7 mm. long, with purplish hairs in the fissures or glabrate.

Lima: Quebradas de San Mateo, *Isern 2555*.—Cuzco: Pillahuata, Cerro de Cusilluyoc, swampy place in forest, 2,100–2,300 meters, *Pennell 13957*. Río Yanamayo, in forest, 2,000–2,300 meters, *Pennell 14055*. Bolivia.

69a. *Centropogon yungasensis* var. *angustior* A. Zahlbr. Bot. Jahrb. 37: 452. 1906.

Leaves oblong-lanceolate, 7.5–10.5 cm. long, 2.6–3.5 cm. wide, acuminate, acute to obtuse at the base, flat-crenate; raceme elongate; bracts ovate-oblong, with short petioles, 2 cm. long, 1 cm. wide; pedicels 15–20 mm. long, puberulent; sepals linear-lanceolate, denticulate, spreading, 8–11 mm. long; corolla 3 cm. long, puberulent.

Junín: Mountains of Yanangu, east of Huacapistana, open forest, 2,100–2,200 meters, *Weberbauer 2131*.

2. Lobelioideae-Capsuliferae

LOBELINAE

Corolla tube entire (*Eusiphon*) or longitudinally split on the upper side to the base (*Schizosiphon*). Ovary 2-celled, with a central placenta. Capsule loculicidally dehiscent at the apex by 2 valves.

7. SIPHOCAMPYLUS Pohl

Erect or climbing shrubs, suffrutescent plants, or coarse herbs. Leaves alternate, rarely verticillate, mostly undivided, petiolate. Flowers solitary in the axils of leaves or bracts, often arranged in terminal racemes or corymbs, very rarely in lateral, umbelliform racemes, pedicellate. Calyx mostly turbinate or hemispheric, with 5 distinct lobes. Corolla showy, 2–7 cm. long, occurring in 4 forms: (a) the entire tube slender, curved or straight, above the base more or less constricted, then gradually subventricose or funnel-shaped to the limb, the filaments inserted in the corolla above the base, the corolla lobes 3–5 times shorter than the tube; (b) the corolla tube comparatively stout and nearly equally wide from the base to the subinflated throat, the filaments often adnate to the corolla, the corolla lobes as long as or somewhat longer than the corolla tube; (c) tube as described previously, but the lowest corolla lobe separated to the middle or nearly to the base of the tube and more or less pendent, the filaments somewhat adnate to the corolla; (d) the corolla tube short and attenuate below the inflated limb, the filaments free from the corolla, the corolla lobes somewhat longer than the tube. Filaments distinct below, connate upward into a narrow, exserted column. Anther tube cylindric, slightly curved, the 2 lower anthers somewhat shorter and pilose-penicillate at the tip. Style 1, with a 2-lobed stigma. Fruit a bilocular, many-seeded capsule, dehiscent at the apex by 2 valves. Seeds globose to ellipsoid, mostly brown, shining, 0.5–1 mm. long.

Siphocampylus grows chiefly on the higher mountains, especially in the Andes of Colombia, Ecuador, and Peru. Besides, it is distributed on the West Indian Islands and from Costa Rica and Venezuela to Bolivia and Argentina. There are at present known 240 species, of which 85 are found in Peru and the contiguous districts. Several of them are used as ornamental plants. Fertilization is accomplished chiefly by humming-birds.

Leaves and flowers verticillate.....1. *Verticillati*.
Leaves alternate.

Inflorescence a short or elongate raceme.

Inflorescence a lateral, umbelliform raceme 2. *Ectropici*.

Inflorescence terminal.

Flowers forming a short, umbelliform raceme . 3. *Corymboides*.

Flowers forming an elongate raceme.

Flowers in the axils of small bracts . . 4. *Bracteato-racemosi*.

Flowers in the axils of leaves (leafy raceme).

5. *Foliato-racemosi*.

Flowers solitary in the axils of the upper leaves, often crowded or corymbose at the summit.

Corolla form a; corolla tube 3-5 times longer than the lobes.

6. *Dissitiflori*.

Corolla form b-d; corolla tube as long as or shorter than the corolla lobes.

Lowest corolla lobe very deeply separated; corolla form c.

7. *Altofissi*.

Corolla lobes almost equally deeply separated from the corolla.

Anther tube comparatively long (anthers 10-15 mm. long; filaments 20-25 mm. long), the 2 lower anthers without beard (at most with a few short hairs) . . 8. *Megalandri*.

Anther tube mostly stout (anthers 10-15 mm. long; filaments 30-48 mm. long), often densely hirsute, the 2 lower anthers barbate 9. *Megastomi*.

1. *Verticillati*

Leaves oblong to elliptic, acuminate; sepals linear, 12-15 mm. long.

53. *S. Orbignianus*.

2. *Ectropici*

Leaves oblong, acute; sepals 3-5 mm. long 51. *S. oblongifolius*.

Leaves oblong, acuminate; sepals 10 mm. long. . 48. *S. membranaceus*.

3. *Corymboides*

Leaves ovate to oblong-ovate, subacuminate, cordate or rounded at the base; few flowers often in the uppermost leaf axils or the raceme elongating 40. *S. igneus*.

4. *Bracteato-racemosi*.

Climbing shrubs with pendent branches. Flowers in the axils of the small bracts, secund; pedicels mostly 1-2 cm. long (only *S. calodontus* with pedicels 4-6 cm. long).

- A. Corolla tube 7–10 mm. long, narrow (3–5 mm.), shorter than the corolla lobes, which are linear and 20–25 mm. long.

Plants ferruginous-stellate-tomentose; leaves oblong, subcordate at the base.....43. *S. loxensis*.

Plants simple-hairy or nearly glabrate.

Leaves ovate, rounded at both ends; raceme often leafy.

30. *S. fissus*.

Leaves oblong, ovate-oblong, or obovate-oblong.

Leaves glossy; anthers glabrous.....59. *S. Pavonis*.

Leaves dull; anthers pilose in the fissures..36. *S. floribundus*.

Plants glabrous.

Leaves broadly ovate to elliptic, 3 cm. long, 2 cm. wide, membranaceous; bracts elliptic, long-petiolate.69. *S. secundus*.

Leaves ovate-oblong, 8 cm. long, 3 cm. wide, obtuse, coriaceous, glossy; bracts oblong to lanceolate.....54. *S. ovatus*.

Leaves elliptic to ovate-elliptic, 6 cm. long, 3 cm. wide, sub-acuminate, coriaceous, dull; bracts subulate.

17. *S. chloroleucus*.

- A. Corolla tube 30–40 mm. long, 3–5 times longer than the (10–15 mm. long) lobes.

Sepals reflexed, 6–7 mm. long.

Plant glabrous.....15. *S. calodontus*.

Plant pubescent.....18. *S. tortuosus*.

Sepals erect, rarely subrecurved at the tip.

Plants glabrous; sepals dentiform.

Leaves acuminate; raceme sometimes leafy below.

4. *S. angustiflorus*.

Leaves obtuse to rounded at the apex, rarely acute.

Leaves broadly elliptic to obovate-rounded..*S. carnosus*.

Leaves oblong, ovate-oblong, or elliptic-oblong.

Bracts linear-lanceolate, sessile, shorter than the pedicels.

69. *S. scandens*.

Bracts oblong to elliptic, petiolate, often longer than the pedicels.....27. *S. divaricatus*.

Plants scabrellate-puberulent or pubescent.

Sepals dentiform; leaves ovate-oblong to elliptic, short-acuminate.....31. *S. flagelliformis*.

Sepals linear, (4) 7–10 mm. long.

Leaves remotely denticulate; corolla 40–49 mm. long.

Plants pubescent; sepals 7 mm. long. 14 *S. Buesii*.

Plant scabrellate-puberulent; sepals 4 mm. long.

60. *S. penduliflorus* var. *asperatulus*.

Leaves densely denticulate; corolla 6 cm. long.

63. *S. pozuzensis*.

5. *Foliato-racemosi*.

Stout, erect herbs 60–150 cm. high, mostly rather densely leafy, with racemes 20–50 cm. long, that are wholly leafy or upward the leaves reduced to foliaceous bracts. Petioles very short or none. Anther tube pilose at the base.

Leaves ovate to ovate-oblong, acute, serrate-dentate.

12. *S. biserratus*.

Leaves triangular-oblong, subacute, callous-denticulate.

81. *S. venustus*.

Anther tube glabrous (except the terminal tuft of the lower anthers).

Leaves broadly ovate, cordate at the base. 5. *S. apricus*.

Leaves triangular-elongate or ovate-oblong, rounded or truncate at the base.

Sepals linear, entire, 5 mm. long. 44. *S. macropodioides*.

Sepals triangular or triangular-linear, callous-denticulate; leaves acute at the apex. 79. *S. tupaeformis*.

Leaves ovate-linear, oblong-linear, or linear.

Sepals triangular, callous-denticulate; leaves ovate-linear, the upper leaves nearly linear, acute. 20. *S. Coltinya*.

Sepals triangular, entire.

Leaves narrow-oblong, obtuse, mucronate or acute at the tip, tomentulose beneath. 33. *S. foliosus* var. *subcanus*.

Leaves ovate-linear to linear, 14 cm. long, 1.3 cm. wide, cuspidate at the apex, rounded at the base, sessile.

79. *S. tupaeformis* var. *stenophyllus*.

Leaves oblong, 7 cm. long, 2 cm. wide, acute, obtuse at the base, strongly reticulate and tomentulose beneath.

41. *S. Krauseanus*.

6. *Dissitiflori*.

A majority of the species belong to this group. The axillary flowers are more or less remote from one another, or congested,

mostly long-pedicellate, but often shorter than the subtending leaves.

A. Hypanthium depressed-globose or hemispheric, rounded at the base, mostly broader than long.

Leaves ovate-subcordate to broadly rounded at the base.

Leaf tip rounded, mucronate.....5. *S. apricus*.

Leaf tip acuminate.....44. *S. macropodioides*.

Leaves subrotund to acute at the base.

Leaves ovate-oblong or ovate-lanceolate.

Filaments pubescent; corolla 45 mm. long.13. *S. boliviensis*.

Filaments glabrous; corolla 25–35 mm. long.64. *S. puberulus*.

Leaves elliptic, oblong, oblong-linear, or lanceolate.

Sepals linear, 15–20 mm. long; stamens white-villous.

68. *S. sanguineus*.

Sepals 3–10 mm. long; stamens glabrous.

Lower surface of the leaves strongly reticulate and more or less arachnoid.

Lower leaf surface white-arachnoid.....6. *S. arachnes*.

Lower leaf surface scarcely arachnoid.

Leaves oblong, 7–8 cm. long, 2 cm. wide; sepals denticulate.....67. *S. salviifolius*.

Leaves oblong to ovate-elliptic; sepals entire.

62. *S. phaeton*.

Lower surface of the leaves sparsely or densely pubescent.

Pedicels 7–8 cm. long; leaves sparsely pubescent.

72. *S. sparsipilus*.

Pedicels 1–4 cm. long; leaves densely pubescent beneath.

Corolla tube abruptly and strongly curved.

28. *S. Dossennus*.

Corolla tube nearly straight.

Leaves elliptic-oblong, 8 cm. long, 2.7 cm. wide; corolla lemon-yellow.....18. *S. citrinus*.

Leaves narrow-oblong, 8 cm. long, 1.3 cm. wide.

45. *S. macrostemon*.

A. Hypanthium almost none (at first short, broadly turbinate or short-hemispheric and much broader than long).

Leaves oblong-ovate, acuminate, subcordate to rounded at the base, scarcely stellate-pubescent.....74. *S. stenolobus*.

Leaves ovate-lanceolate or subovate-linear.

Sepals triangular, spreading.

Sepals entire.

Corolla 5 cm. long; leaves ovate-lanceolate, subacute.

3. *S. andinus*.

Corolla 6 cm. long; leaves triangular-oblong, acute.

3. *S. andinus* var. *elegantissimus*.

Sepals with few teeth; corolla 7 cm. long.

3. *S. andinus* var. *solemnis*.

Sepals linear-lanceolate or triangular-linear, denticulate or subentire, spreading to reflexed.

Sepals linear-lanceolate, subobtusate, at least reflexed, 2 cm. long. 71. *S. soraticus*.

Sepals sublinear, acute.

Leaves lance-linear, somewhat broader in the lower portion.

71. *S. soraticus* var. *angustus*.

Leaves ovate-lanceolate. 19. *S. Clotho*.

A. Hypanthium turbinate or obconic, acute at the base.

B. Leaves narrowed at the base.

C. Leaves lanceolate to linear.

Leaves linear.

Leaves white-tomentose beneath. 65. *S. rosmarinifolius*.

Leaves very narrow, quite glabrous. 40. *S. nobilis*.

Leaves lanceolate, acute at both ends.

Sepals with 1 to 3 teeth on each side.

Leaves glabrous. 85. *S. Williamsii*.

Leaves with dense pubescent warts. 29. *S. Elfriedi*.

Sepals entire.

Leaves linear-lanceolate, 20-25 mm. long, 3.5 mm. wide, granular-roughened beneath. 73. *S. Spruceanus*.

Leaves lanceolate, somewhat obovate, 20 mm. long, 5 mm. wide, subacute, cuneate at the base, glabrous, glossy; sepals 3-4 mm. long. 57. *S. parvifolius*.

Leaves lanceolate to ovate-lanceolate, acute at both ends. 7 cm. long, 1 cm. wide; sepals 5-6 mm. long.

21. *S. comosus*.

Leaves lance-oblong or oblong (9 cm. long, 2-3 cm. wide).

Leaves glabrous, ovate-lanceolate, cuspidate.

Sepals dentiform, 1 mm. long.....58. *S. parvilobus*.

Sepals subulate, 3 mm. long, recurved at the tip.

61. *S. peruvianus*.

Sepals narrow-triangular, 7 mm. long, erect; corolla 35 mm.

long.....8. *S. attenuatus*.

Leaves pubescent or arachnoid on the lower surface.

Sepals subulate, entire, 5 mm. long; leaves pubescent beneath.....55. *S. pallidus*.

Sepals sublinear, subdenticulate, 12-16 mm. long.

Pedicels very long, 13-15 mm.....82. *S. versicolor*.

Pedicels 5-9 cm. long.

Leaves lance-oblong, acute at both ends, 9 cm. long,

2.3 cm. wide; lower surface of the leaves and calyx

arachnoid-tomentose.....10. *S. bichromatus*.

Leaves oblong, sometimes subovate-oblong, subacute,

9 cm. long, 3.2 cm. wide; lower leaf surface very

thinly arachnoid.....62. *S. phaeton*.

C. Leaves ovate or elliptic.

Plants ferruginous-tomentulose or -pubescent; leaves ovate or oblong-ovate, acute, 3 cm. long, 2 cm. wide.

22. *S. correoides*.

Plants scarcely pubescent.

Leaves elliptic, subacute, subrounded at the base, on the upper surface rugose and lustrous...36. *S. heliades*.

Leaves elliptic, mostly broader below the middle, short-acuminate, acute or subrounded at the base, on the upper surface plane and dull.....34. *S. Goebelii*.

B. Leaves rounded or cordate at the base; all leaves of an ovate type.

Leaves small, broadly ovate, 12-20 mm. long, 9-14 mm. wide, subacute; corolla 6 cm. long.....42. *S. Lobbi*.

Leaves much larger (except sometimes the uppermost floral leaves).

Sepals subulate, 2-5 mm. long.

Leaves callous-denticulate; corolla 58 mm. long.

37. *S. Helmuti*.

Leaves sinuate-dentate; corolla 35-45 mm. long.

16. *S. Candollei*.

Sepals triangular, triangular-lanceolate, or linear, 6–23 mm. long.

Leaves ovate-lanceolate, subacute, remotely denticulate.

3. *S. andinus*.

Leaves oblong-ovate or ovate, rarely elliptic, at the base often subcordate.

Sepals triangular.

Corolla 6 cm. long; sepals 12–16 mm. long, spreading.

3. *S. andinus* var. *solemnis*.

Corolla 5 cm. long; sepals 6–7 mm. long, erect.

38. *S. Humboldtianus*.

Sepals narrow-linear, 7–23 mm. long, 1–2 mm. broad.

Plants glabrous; leaves subcoriaceous, glossy.

76. *S. subcordatus* var. *dives*.

Plants puberulent or tomentose, at least on the lower leaf surface.

Anther tube pilose in the fissures.

Leaves more or less puberulent on the lower leaf surface.

Sepals 9–12 mm. long.

Leaf tip obtuse.....76. *S. subcordatus*.

Leaf tip gradually acuminate..7. *S. argutus*.

Sepals 16–19 mm. long.....11. *S. bilabiatus*.

Leaves tomentose on the lower surface.

Pedicels 9–10 cm. long, with 2 bractlets at the base; tomentum gray.....52. *S. onagrius*.

Pedicels 5–7 cm. long, without bractlets; tomentum brown.....26. *S. dependens*.

Anther tube glabrous.

Plants tomentulose, except the upper leaf surface.

Corolla 46 mm. long; tomentum gray.

26. *S. dependens* var. *undulatus*.

Corolla over 6 cm. long; tomentum lurid-yellowish.

Plants with scattered pubescence.

Sepals 15–20 mm. long, spreading to reflexed.

74. *S. stenolobus*.

Sepals 7–10 mm. long, suberect.

9. *S. aurocinctus*.

7. *Altofissi*

Shrubs 1–2 meters high with corymbiform inflorescences and long-pedicellate flowers. The corolla is striking from the deep separation of the lowest corolla lobe, which is commonly separated nearly to the base; in only 2 cases is it separated only to the middle of the corolla. The filaments are inserted in the corolla tube above the base.

Lowest corolla lobe separated from the corolla at the middle of the latter.

Leaves ovate-oblong, subcordate to rounded at the base.

56. *S. palilloanus*.

Leaves lanceolate, acute at the base.....1. *S. actinothrix*.

Lowest corolla lobe separated nearly to the base of the corolla.

Leaves linear-lanceolate.....23. *S. corynellus*.

Leaves obovate-oblong to elliptic-oblong.

Sepals ovate, 2 mm. long; leaves densely short-pilose beneath.

50. *S. obovatus*.

Sepals triangular to linear, 3–7 mm. long; leaves arachnoid-tomentulose beneath.....24. *S. corynoides*.

8. *Megalandri*

Suffrutescent plants or shrubs, 1.5–3 meters high, with corymbiform inflorescences, long-pedicellate flowers, and greenish white, reddish-tinged corollas. The corolla recalls *Burmeistera* in having a similar shape, also the terminal tufts of hairs are absent from the 2 lower anthers and the filaments are not inserted in the corolla.

Sepals triangular, acuminate, entire, 3 mm. long...25. *S. cutervensis*.

Sepals sublinear, denticulate, 10–17 mm. long.

Pedicels without bractlets; leaves gray-yellowish-pubescent on the lower surface.....46. *S. Matthiaei*.

Pedicels bibracteolate at the base; leaves whitish-tomentose beneath.....84. *S. Weberbaueri*.

9. *Megastomi*

Branched shrubs 1–4 meters high, with corymbose, long-pedicellate flowers. The tube of the corolla is straight and nearly equally wide or somewhat dilated to the throat. The filaments are mostly free from the corolla. The corolla lobes are as long as or longer than the corolla tube.

Anther tube glabrous or nearly so.

Leaves lanceolate to lance-oblong, glabrous, somewhat scabrous.

83. *S. veteranus*.

Leaves oblong to ovate-oblong, glutinous-pubescent beneath.

80. *S. Vatkeanus*.

Leaves ovate, acute to acuminate, subcordate to rounded at the base, scarcely puberulent on the veins beneath; anther tube distally sparsely pubescent, at the tip scarcely pilose.

66. *S. Rusbyanus*.

Anther tube densely hirsute, 12–15 mm. long, 5–7 mm. wide.

Leaves sublinear to lanceolate, dense.

Leaves sessile, sublinear, 11–13 cm. long, 0.6–0.8 cm. wide.

39. *S. Jelskii*.

Leaves petiolate, linear-lanceolate, 16–18 cm. long, 1.3–2 cm. wide.....

39. *S. superbus*.

Leaves oblong to elliptic, not dense.

Pedicels without bractlets; filaments glabrous; leaves elliptic to oblong, yellowish-pubescent beneath.....

2. *S. albus*.

Pedicels with 2 bractlets above the base; filaments pubescent; leaves lance-oblong or oblong, ochreous-tomentulose beneath.....

47. *S. megastoma*.

1. *Siphocampylus actinotherix* E. Wimm. Repert. Sp. Nov. 19: 253. 1924.

A rough, branched shrub; leaves lanceolate, 11–13.5 cm. long, 2.5–3 cm. wide, acuminate, acute at the base, unequally denticulate, rough above, beneath, especially on the veins, with short-pilose warts; petiole stout, 4–10 mm. long; flowers in the axils of the upper leaves; pedicels 12–15 cm. long, with 2 bractlets above the base; calyx lobes narrowly triangular, denticulate, spreading, 7 mm. long; corolla dorsally red, ventrally yellowish, densely covered with hairy warts, 36 mm. long, the 4 upper lobes 1 cm. long, the lowest lobe nearly 2 cm. long because it is deeply separated; anther tube 8 mm. long, villous at the apex.

Cuzco: Piñasniocj, Panticalla Pass, Llancu, 3,600 meters, *Cook & Gilbert 1821*, type. Valle del Urubamba, Ollantaitambo, 2,500 meters, *Herrera 3576*.

2. *Siphocampylus albus* E. Wimm. Repert. Sp. Nov. 26: 17. 1929.

A shrub 4 meters high, gray-yellowish-pubescent; leaves elliptic to oblong, 12–14 cm. long, 4–5.5 cm. wide, acuminate, callous-denticulate, acute at the base, the narrowly winged petiole 1 cm. long, glabrescent and glossy above, pubescent beneath, especially on the veins; flowers axillary, crowded at the summit; pedicels 11–12 cm. long, pubescent; hypanthium hemispheric, 13 mm. in diameter when pressed; sepals narrow-triangular, 18–20 mm. long, denticulate, pubescent, suberect; corolla white, almost equally wide, 37 mm. long, at the throat 12–15 mm. wide, pubescent, the lobes 16–22 mm. long; filaments glabrous, adnate to the base of the corolla; anther tube 13 mm. long, 4 mm. wide, densely yellowish-pilose on the upper half.

Piura: Near Ayavaca, among bushes along the river, 2,700–2,800 meters, *Weberbauer 6383*, type.

3. *Siphocampylus andinus* Britton, Bull. Torrey Club 19: 373. 1892.

A shrub with slender, climbing branches; petiole tortuous, 5–6 mm. long; leaves ovate-lanceolate, 4–8 cm. long, 1–2 cm. wide, acute, remotely denticulate, rounded at the base, glossy, on the veins beneath inconspicuously puberulent; pedicels axillary, 3 cm. long; hypanthium very short or none; sepals ovate-lanceolate, sub-acute, entire, spreading, 10–13 mm. long, 4–5 mm. wide at the base; corolla crimson, puberulent, 5 cm. long; filaments pubescent; anther tube glabrous.

Peru: Probably occurring. Bolivia (Unduavi, *Rusby 941*, type).

3a. *Siphocampylus andinus* var. *elegantissimus* E. Wimm. Repert. Sp. Nov. 38: 22. 1935.

A shrub 3–4 meters high, climbing; leaves ovate-triangular, gradually acute, broader, 5 cm. long, 2.5 cm. wide; pedicels 4–5 cm. long; corolla 6 cm. long, at the throat 1 cm. wide; filaments glabrous; anther tube 9 mm. long, on the back scarcely pubescent.

Peru: Not yet collected. Bolivia (La Paz, *Buchtien 97, 98*).

3b. *Siphocampylus andinus* var. *solemnis* E. Wimm. Repert. Sp. Nov. 38: 23. 1935.

Leaves ovate-lanceolate, gradually acute-cuspidate, 5 cm. long, 1.3 cm. wide; pedicels 3–4 cm. long; sepals 13–15 mm. long, 6 mm. wide at the base, subdenticulate; corolla 7 cm. long; filaments glabrous; anther tube scarcely pubescent on the back.

Peru: Probably. Bolivia (*Bang 2491*).

4. *Siphocampylus angustiflorus* Schlecht. in Lechler, Berberid. Amer. Austr. 58. 1857 (nomen); ex Zahlbr. Bull. Torrey Club 24: 379. 1897.

A shrub to 2 meters high with pendent, slender, striate, granular-scabrous branches; leaves short-petiolate, ovate-oblong, 4–5.7 cm. long, 1.7–2.2 cm. wide, mostly acuminate and falcate, rounded at the base, remotely callous-denticulate, often conduplicate, glabrous, glossy; flowers in terminal, bracteate or (below) leafy racemes; pedicels scabrous, 10–15 mm. long; hypanthium turbinate, with 5 dentiform lobes 1 mm. long; corolla purple to rose-colored, glabrous, 33 mm. long, the lobes sublinear, 10–15 mm. long; filaments glabrous, 3 cm. long; anther tube greenish, 5 mm. long, all the anthers pilose at the apex, but the 2 lower longer ones hirsute. Neg. 30996.

Amazonas: East of Chachapoyas, between Tambo Almirante and Bagazán, 2,700 meters, *Weberbauer 4433*.—Cajamarca: Santa Cruz, 2,100–2,400 meters, and Callayuc, in woods, 2,400 meters, *Pearce*.—Huánuco: Mountains southwest of Monzón, 2,500–2,900 meters, *Weberbauer 3391*. Playapampa, 2,700 meters, *4877*.—Puno: Between Tambo Ichubamba and Tambo Yuncacoya, road from Sandía to Chunchosmayo, 1,800–2,600 meters, *Weberbauer 1102*.—Without locality, *Lechler 2649*, type. Bolivia.

5. *Siphocampylus apricus* E. Wimm. Repert. Sp. Nov. 22: 206. 1926.

A suffrutescent plant; leaves elliptic-ovate, 5–6 cm. long, 3.7 cm. wide, cordate at the base, at the apex rounded and very short-acuminate, the margin undulate and erose-denticulate, glabrous and rugose above, puberulent beneath; flowers axillary, mostly forming terminal and lateral, leafy racemes; pedicels 28 mm. long, puberulent, bibracteolate above the base; hypanthium hemispheric, with 5 triangular, denticulate, puberulent, erect lobes 4–5 mm. long; corolla yellow and red, puberulent, 32 mm. long, the lobes sublinear, 10–8 mm. long; filaments glabrous, 3 cm. long; anther tube 7 mm. long, straw-colored.

Puno: On sunny slopes, hedges, and walls near Lake Titicaca, *Seler 135* p. p., type.

6. *Siphocampylus arachnes* E. Wimm. Notizbl. Bot. Gart. Berlin 10: 743. 1929.

A suffrutescent plant with glabrous, pithy branches; petiole 1 cm. long; leaves oblong, 9 cm. long, 2.6–3 cm. wide, subacute, acute at the base, the margin revolute and callous-denticulate,

rugose, glabrous, glossy above, reticulate and white-arachnoid-tomentose beneath; flowers axillary, crowded at the summit, the floral leaves mostly lanceolate; pedicels 4 cm. long, floccose, bibracteolate at the base; hypanthium depressed-globose; sepals sublinear, 10–12 mm. long, denticulate, erect, arachnoid; corolla red, glabrous, 44 mm. long, the lobes sublinear, about 12 mm. long; filaments glabrous; anther tube 7 mm. long.

Junín: Chanchamayo, between Chontatamba and Marainioc, *Raimondi* 2667, type.

7. *Siphocampylus argutus* A. Zahlbr. Bull. Torrey Club 24: 383. 1897.

A suffrutescent, climbing plant with slender, glabrous, pendent branches; leaves ovate to ovate-oblong, 10 cm. long, 4 cm. wide, gradually acuminate, cordate at the base, unequally sharp-denticulate, dull and very minutely puberulent on the upper surface, more so along the midvein above, glossy and glabrous beneath; pedicels 17–19 mm. long, puberulent; hypanthium campanulate-turbinate; sepals subulate, 8–10 mm. long, 1 mm. wide, entire, puberulent, at last recurved; corolla crimson, puberulent, about 46 mm. long; filaments pubescent; anther tube white-pilose along the commissures.

Peru: Probably. Bolivia (Yungas, *Bang* 2045, type).

8. *Siphocampylus attenuatus* (Presl) A. DC. in DC. Prodr. 7: 398. 1839. *Lobelia attenuata* Presl, Prodr. Monogr. Lobel. 34. 1836.

Branches glabrous, olive-green, pithy; petiole about 8 mm. long; leaf blades ovate-lanceolate, 9 cm. long, 2.5 cm. wide, gradually acuminate-cuspidate, rounded at the base, remotely denticulate, glabrous, glossy; flowers axillary, racemose or corymbose at the summit, the floral leaves much smaller (5–3 cm. long); pedicels 35 mm. long, puberulent, bibracteolate below the middle; hypanthium obconic, puberulent; sepals sublinear, 8 mm. long, entire, suberect; corolla red(?), puberulent, straight, 36 mm. long, the lobes linear, 8–12 mm. long; stamens glabrous. Neg. 30997.

Without locality, *Herb. Presl*.

9. *Siphocampylus aurocinctus* E. Wimm. Repert. Sp. Nov. 19: 243. 1924.

A shrub 2 meters high, sometimes climbing; leaves with petioles 8–15 mm. long and puberulent, elliptic to ovate-elliptic, acute, subrotund at the base, callous-denticulate, 8–15 cm. long, 4–8.5 mm. wide, glabrous above, pubescent, especially on the veins, beneath;

flowers axillary, often crowded at the summit, the floral leaves then oblong-lanceolate, acuminate, acute at the base; pedicels 4 cm. long, pubescent, without bracteoles; hypanthium campanulate-turbinate, pubescent; sepals linear, 10–11 mm. long, pubescent, spreading, with 1–2 teeth on each side; corolla scarlet, with orange-red limb, puberulent, 40–46 mm. long, the lobes linear, 12–15 mm. long; stamen tube glabrous.

Ayacucho: Aina, between Huanta and Río Apurímac, open woods, 750–1,000 meters, *Killip & Smith 22689*. Prov. Huanta, road from Tambo via Osno to Río Apurímac, above Aina, 1,500–1,700 meters, *Weberbauer 5598*, type.

10. *Siphocampylus bichromatus* E. Wimm. Repert. Sp. Nov. 19: 253. 1924.

A shrub 2 meters high with granular and upward arachnoid-floccose branches; petiole 6–8 mm. long; leaf blades lanceolate, 8–10 cm. long, 2.2 cm. wide, acute at both ends; irregularly denticulate, glabrous and rugose above, white-arachnoid-tomentose beneath; flowers axillary, corymbiformly arranged at the summit; pedicels 5–7 cm. long, floccose, with 2 minute bractlets above the base; hypanthium turbinate, tomentose; sepals linear, denticulate, suberect, floccose-tomentulose, 11 mm. long; corolla scarlet with orange-red limb, glabrous, nearly straight, 35 mm. long, the lobes sublinear, about 11 mm. long; stamen tube glabrous.

Huancavelica: Prov. Tayacaja, mountains at the left side of Río Mantaro, northeast of Salcabamba, 3,300 meters, *Weberbauer 6504*, type.

11. *Siphocampylus bilabiatus* A. Zahlbr. Bull. Torrey Club 24: 382. 1897.

An erect, stout herb with terete, puberulent, pithy branches; petiole tortuous, puberulent, 9–12 mm. long; leaves ovate-triangular, 9 cm. long, 3.4 cm. wide, gradually tapering to the tip, subcordate to rounded at the base, remotely exserted-denticulate, glabrous and rugose above, puberulent beneath; flowers axillary; pedicels 25–55 mm. long, puberulent, without bractlets; hypanthium turbinate; sepals linear, 16–21 mm. long, spreading, entire, glabrescent; corolla puberulent, nearly straight, scarcely dilated to the throat, 55 mm. long, 8 mm. wide at the throat when pressed, the 2 upper lobes grown together nearly to the middle, 22 mm. long, the 3 lower lobes nearly equal, 16 mm. long; filaments, especially on the lower side, puberulent; anther tube 9 mm. long, white-pilose in the fissures.

Peru: Perhaps occurring. Bolivia (Yungas, *Bang 2464*, type).

12. *Siphocampylus biserratus* (Cav.) A. DC. in DC. Prodr. 7: 397. 1839. *Lobelia biserrata* Cav. Icon. 6: 10. pl. 514. 1801. *S. Cavanillesianus* G. Don, Gen. Syst. 3: 702. 1834.

A coarse herb 60–90 cm. high; leaves short-petiolate or nearly sessile, ovate, 6.5 cm. long, 3 cm. wide, acute, rounded at the base, unequally dentate or doubly dentate, sparsely puberulent above, gray-tomentulose beneath; flowers solitary in the axils of the leaves, but mostly approximate and thus forming a leafy raceme; pedicels 15–20 mm. long, tomentose, bibracteolate above the base; hypanthium hemispheric, tomentose; sepals subulate, 2–4 mm. long, denticulate, tomentose, recurved at the tip; corolla yellow streaked with orange-red, glabrous or pubescent along the nerves, about 44 mm. long, the lobes linear, 16 mm. long; filaments glabrous; anther tube glabrous, with 5 little tufts of hairs at the base.

Ancash: Prov. Cajatamba, Ocros, on grassy mats with interspersed shrubs, 3,200–3,400 meters, *Weberbauer* 2665.—Junín: Between Palca and Chanchamayo, *Raimondi* 12381.—Lima: Near Buenaventura, *Née*, type in herb. Madrid. Matucana, 363. Above Obrajillo, *Pennell* 14425. Río Blanco, open hillside, 3,500 meters, *Killip & Smith* 21623. San Damián, *Raimondi* 10688. Between San Mateo and Tarma, *Raimondi* 12382.—Department unknown: Anchi, river bank, *Salvatier*. Without data: *MacLean*.

12a. *Siphocampylus biserratus* var. *petiolaris* E. Wimm. Notizbl. Bot. Gart. Berlin 10: 737. 1929.

Petioles 5–7 mm. long; leaf blades subovate-oblong to oblong, 5.6 cm. long, 2 cm. wide, acute to obtuse, at the base shortly cuneate to acute, sharply dentate.

Junín: Between Palca and Chanchamayo, *Raimondi* 2396.—Lima: Near Obrajillo in the Valley of Canta, *Cruckshanks*. Quebrada de San Mateo, *Isern* 2090.

Siphocampylus biserratus var. *latifolius* A. DC. loc. cit. (leaves larger and sessile; Peru, *Matthews* 520) is not different from the type.

13. *Siphocampylus boliviensis* A. Zahlbr. Ann. Naturhist. Hofmus. Wien 6: 443. 1891.

A coarse herb or a suffrutescent plant; stem gray-tomentose above; petiole 15 mm. long; leaves ovate-lanceolate, 16 cm. long, 3.5 cm. wide, gradually tapering to the tip, subacute at the base, densely and finely denticulate, rugose and dull on the upper surface, pubescent and along the midvein tomentose beneath; flowers solitary in the axils of the upper leaves and becoming corymbose at the

summit; pedicels about 10 cm. long, pubescent; hypanthium depressed-globose, tomentulose; sepals triangular, 4–5 mm. long, entire, puberulent, erect; corolla red(?), puberulent, straight, 45 mm. long, the lobes linear, 15–18 mm. long; filaments pubescent; anthers glabrous. Neg. 9082.

Peru: Probably. Bolivia (near Sorata, along fences and woods everywhere, 2,700–3,300 meters, *Mandon* 496, type; *Rusby* 645. Yungas, *Weddell* 4268).

14. **Siphocampylus Buesii** E. Wimm. Repert. Sp. Nov. 38: 17. 1935.

A climbing shrub with angular, ferruginous-scabrous-pubescent branches; petiole 4 mm. long; leaves elliptic-oblong to ovate-oblong, 35–44 mm. long, 15–18 mm. wide, subacuminate, rotund at the base, callous-denticulate, glabrous above, villous beneath especially on the veins; pedicels in the axils of leaves or bracts, pubescent, 7 mm. long; inflorescence probably a terminal raceme; hypanthium obconic; sepals sublinear, 7 mm. long, entire, pubescent, erect; corolla red(?), puberulent, 49 mm. long; filaments glabrous; anther tube 7 mm. long, pilose at the apex.—This species is closely related to *S. angustiflorus*, from which it differs in its pubescence, sepals, and corolla.

Cuzco: *Bües*, type.

15. **Siphocampylus calodontus** E. Wimm. Repert. Sp. Nov. 29: 87. *pl.* 128, *f.* 4. 1931.

A glabrous, climbing shrub; petioles 3–5 mm. long; leaves oblong, 6–8 cm. long, 2.5–3 cm. wide, acute at both ends, densely and finely sharp-dentate; flowers in loose, corymbiform racemes; bracts small, lanceolate; pedicels 40–55 mm. long; hypanthium hemispheric; sepals 7 mm. long, reflexed, triangular-linear, subdenticulate; corolla red, nearly straight, 40 mm. long, the lobes sublinear, 10 mm. long; stamen tube glabrous.

Cajamarca: Santa Cruz, 2,100–2,400 meters, *Pearce*, type.

16. **Siphocampylus Candollei** E. Wimm. Repert. Sp. Nov. 22: 208. 1926. *Lobelia laciniata* Presl, Prodr. Monogr. Lobel. 40. 1836. *S. laciniatus* A. DC. in DC. Prodr. 7: 397. 1839, vix G. Don, Gen. Syst. 3: 704. 1834.

Stem herbaceous, erect, glabrous; petiole 5–15 mm. long; leaves ovate to ovate-oblong, 7–10 cm. long, 1.7–4 cm. wide, gradually tapering to the acute tip, subcordate to shortly cuneate at the base, more or less deeply sinuate-dentate or irregularly and coarsely den-

tate, glabrous; pedicels axillary, 15–17 mm. long, bibracteolate at the base; inflorescence mostly an elongate, leafy, terminal raceme; hypanthium hemispheric-turbinate, subpubescent like the pedicels; sepals sublinear, 4–5 mm. long, recurved at the tip; corolla orange-red, glabrous, 4 cm. long, the lobes linear, about 1 cm. long; stamen tube glabrous. Neg. 30999.

Lima: Tambo de Viso, on rocks near the Lima-Oroya railroad, 2,650 meters, *Weberbauer 122*, type. Matucana, southeastern rock slope, 2892.

16a. *Siphocampylus Candollei* var. *illustris* E. Wimm. Repert. Sp. Nov. 38: 75. 1935.

Differing from the type in its ovate-oblong leaves, which are rounded and very shortly acuminate at the tip; also in the fiery-red and somewhat longer corolla.

Moquehua: Carumas, in open mixed formation, *Weberbauer 7273*, type.

16b. *Siphocampylus Candollei* var. *breviflorus* E. Wimm. Notizbl. Bot. Gart. Berlin 10: 746. 1929.

Generally smaller in all parts; leaves 5 cm. long, 2 cm. wide, acute; pedicels 1 cm. long; sepals 1.5 mm. long; corolla 3 cm. long.

Lima: Cerro between Surco and Matucana, *Raimondi 12211*, type.

17. *Siphocampylus chloroleucus* E. Wimm. Repert. Sp. Nov. 38: 17. 1935.

A climbing, branched shrub; branches striate and tuberculate; leaves elliptic or ovate-elliptic, 6 cm. long, 3 cm. wide, subacuminate, narrowed at the base to a petiole 5–7 mm. long, the margin remotely denticulate, glabrous; flowers in terminal, somewhat loose, one-sided racemes; bracts subulate, small; pedicels 1 cm. long, scabrous; hypanthium turbinate, with 5 dentiform lobes; corolla greenish white, glabrous, 37 mm. long, its tube 8 mm., the lobes about 3 cm. long; stamen tube glabrous.

Cuzco: Vilcabamba, 5143, 5774.—Junín. Chanchamayo Valley, 1,500 meters, *Schunke 489*. La Merced, Hacienda Schunke, 1,200 meters, *Pennell 14425*.

18. *Siphocampylus citrinus* E. Wimm. Repert. Sp. Nov. 38: 75. 1935.

Stem shrubby, thinly tomentose, 1.5 meters high; leaves short-petioled (2–3 mm.), oblong, 9 cm. long, 2.8 cm. wide, obtuse at both

ends, the margin revolute, denticulate, rugose and glabrous above but pubescent along the midvein, tomentose beneath; flowers solitary in the axils of the upper leaves; pedicels 25 mm. long, pubescent at the base; otherwise glabrous; hypanthium hemispheric; sepals sub-linear, 6 mm. long, denticulate, ciliate, erect; corolla lemon-yellow, 35 mm. long, pubescent along the nerves, the lobes sublinear, about 13 mm. long; stamen tube glabrous.

Cuzco: Prov. Quispicanchi, Marcapata Valley, Chaupichaca, mixed formation, 1,700 meters, *Weberbauer 7829*, type.

19. *Siphocampylus Clotho* E. Wimm. Repert. Sp. Nov. 19: 254. 1924.

A quite glabrous, climbing shrub with slender branches; petioles tortuous, 6–14 mm. long; leaves ovate-lanceolate, 8 cm. long, 1.4 cm. wide, gradually tapering to the cuspidate tip, rotund to subacute at the base, remotely denticulate; pedicels axillary, 5–11 cm. long, often much longer than the subtending leaves; hypanthium almost none; sepals linear, acute, divaricate to reflexed, undulate, entire, 10–15 mm. long; corolla scarlet, the 3 lower lobes orange-red, minutely puberulent, 6 cm. long, 9 mm. wide at the throat when pressed, the lobes nearly linear, 12–16 mm. long; filaments scarcely pubescent; anther tube 8 mm. long, sparsely pilose along the commissures.

Cuzco: Beyond Janamanche, road from Cuzco to Santa Ana, 3,300 meters, *Weberbauer 4972*, type.

19a. *Siphocampylus Clotho* var. *calvescens* E. Wimm. Repert. Sp. Nov. 19: 255. 1924.

Differing from the type by its shorter (3–5 cm. long) pedicels and quite glabrous stamen tube.

Cuzco: Lucumayo Valley, *Cook & Gilbert 1329*, type.

20. *Siphocampylus Coltinya* E. Wimm. Repert. Sp. Nov. 29: 84. 1931.

A suffrutescent plant a meter high; stem obtuse-angular, puberulent, leafy; lower leaves short-petiolate, the upper sessile; leaf blades triangular-lanceolate, 10–15 cm. long, 2.5–2.8 cm. wide, gradually tapering to the acute tip, rounded at the base and sharply dentate, denticulate toward the apex, membranaceous, glabrous above, puberulent beneath, the lateral veins ascending at an angle of about 70°; flowers numerous, axillary, forming a leafy, terminal raceme about 30 cm. long, the upper floral leaves smaller, lanceolate; pedicels 25 mm. long, hirtellous, with 2 subulate bractlets above the base; hypanthium broadly turbinate, hirtellous; sepals narrowly triangular,

3–4 mm. long, denticulate; corolla scarlet on the upper side, yellow on the lower, inconspicuously puberulent, 4 cm. long, its lobes linear, about 15 mm. long; stamen tube glabrous.

Ayacucho: Hacienda Totorobamba, southwest of Ayacucho, 3,500–3,600 meters, *Weberbauer 5462*, type.

21. *Siphocampylus comosus* (Cav.) G. Don, Gen. Syst. 3: 702. 1834. *Lobelia comosa* Cav. Icon. 6: 9. pl. 512, f. 2. 1801. *S. virgatus* A. DC. in DC. Prodr. 7: 398. 1839.

A suffrutescent plant a meter high; leaves short-petioled, lanceolate, 30–48 mm. long, 5–8 mm. wide, acute at both ends, remotely glandular-denticulate, glabrous above, pubescent beneath, especially on the veins; flowers axillary, approximate at the summit; pedicels 3–4 cm. long, slightly pubescent, shorter than the subtending leaves; hypanthium short-turbinate; sepals subulate, 4–6 mm. long, entire, glabrescent, erect; corolla scarlet with a yellow limb, glabrous, 30–35 mm. long, the lobes linear, 12–14 mm. long; stamen tube glabrous. Neg. 27250.

Without locality: *Pavón*; *Poeppig 1069* (*Lobelia virgata* Poepp. mss.).—Huánuco: In mountains, *Herb. Presl*. Prov. Huánuco, valley of the Chinchao, grass steppe with interspersed shrubs, 1,500–1,600 meters, *Weberbauer 6815*. Camino de Vitoc a los altos de Palca, *Isern 2293*.

21a. *Siphocampylus comosus* var. *atrichus* E. Wimm., var. nov.

Differt a specie typica glabritie totali, pedicellis parum longioribus (4–5.5 cm. longis).

Huánuco: Huacachi near Muña, 1,350 meters, *Macbride 3892*, type in Herb. Field Mus.—Junín: Huacapistana, thickets and open woods, 1,800–2,400 meters, *Killip & Smith 24176*.

22. *Siphocampylus correoides* A. Zahlbr. Bull. Torrey Club 24: 382. 1897.

A climbing shrub with slender, scabrous-hirtellous branches; petioles 3–6 mm. long; leaves ovate to elliptic, 2.5–3 cm. long, 0.8–2 cm. wide, acute, subrounded at the base, remotely sharp-denticulate, subcoriaceous, scabrellate above, ferruginous-puberulent beneath; flowers axillary; pedicels 5–6 cm. long, puberulent; hypanthium broadly turbinate; sepals dentiform, subdenticulate; corolla tube curved, 2 cm. long, puberulent, the lobes linear, spreading, 15 mm. long; stamen tube glabrous.

Peru: Probably occurring. Bolivia (Yungas, *Bang 2483*, type).

23. *Siphocampylus corynellus* Gleason, *Torreyia* 25: 93. 1925.
S. Raimondii E. Wimm. *Notizbl. Bot. Gart. Berlin* 10: 741. 1929.

Stem suffrutescent, thinly tomentose above; petiole 8–10 mm. long; leaf blades oblong-linear, 6–11 cm. long, 0.8–1.5 mm. wide, acute at both ends, denticulate, glabrous and rugose above, reticulate and tomentulose beneath; peduncles axillary, crowded at the summit, 6–9 cm. long; hypanthium broadly turbinate; sepals narrowly triangular, 4–5 mm. long, erect; corolla whitish red, 34–38 mm. long, glabrous, the lower lobe linear, about 27 mm. long, separated nearly to the base, the upper lobes about 20 mm. long (corolla form c); filaments glabrous, 21 mm. long; anther tube 12 mm. long, densely woolly at the apex.

Department unknown: Panahuanca mountains, *Mathews* 1185, type.—Huancavelica; Prov. Tayacaja, between Colcabamba and Paucarbamba, *Raimondi* 10264, type of *S. Raimondii*.

24. *Siphocampylus corynoides* E. Wimm. *Repert. Sp. Nov.* 19: 255. 1924.

A shrub 2 meters high with stout, white-floccose-tomentose branches; leaves obovate-oblong, 6–11 cm. long, 2–4 cm. wide, rounded at the apex, long-cuneate to the base and narrowed to a petiole 9–11 mm. long, the margin denticulate, glabrescent above, pale and arachnoid-tomentose beneath; flowers axillary, corymbose at the summit; pedicels 7–9 cm. long, sparsely floccose, bibracteolate at the base; hypanthium turbinate to hemispheric, villous or glabrescent; sepals narrowly triangular, 3 mm. long, entire, glabrescent; corolla (form c) greenish, purple-suffused, floccose or arachnoid, 30–36 mm. long, 10 mm. wide, the lobes sublinear, the lower lobe separated from the corolla nearly to the base, about 25 mm. long; filaments glabrous; anther tube 12 mm. long, villous above.

Cuzco: Beyond Janamanche, road from Cuzco to Santa Ana, 3,200 meters, *Weberbauer* 4966, type. Lucumayo Valley, *Cook & Gilbert* 1326. "South America," *Pearce*. "Concho-concho."

24a. *Siphocampylus corynoides* f. *fortunatus* E. Wimm. *Repert. Sp. Nov.* 38: 20. 1935.

Differing from the type by the oblong to ovate-oblong leaves, thinly arachnoid-tomentose beneath; sepals twice longer, 7–8 mm. long; corolla to 45 mm. long.

Ayacucho: Prov. Huanta, Choimacota Valley, evergreen bush-wood, 3,000 meters, *Weberbauer* 7582, type.—Without data: *Herrera* 1217.

25. **Siphocampylus cutervensis** A. Zahlbr. Ann. Hofmus. Wien 6: 442. 1891. *S. megalandrus* E. Wimm. Repert. Sp. Nov. 19: 259. 1924.

A fetid, suffrutescent plant, the branches compressed-angular, especially on the upper parts floccose-tomentulose; leaves oblong, sometimes obovate-oblong, 11–15 cm. long, 2.6–4 cm. wide, acute to acuminate at both ends, narrowed to a petiole 7–15 mm. long, densely denticulate, hirtellous above, tomentulose beneath, especially on the veins; flowers axillary, mostly crowded at the summit; pedicels 10–12 cm. long, floccose, without bractlets; hypanthium depressed-globose; sepals triangular, entire, hirtellous, 4 mm. long; corolla (form d) greenish white(?), glabrescent, its tube about 2 cm. long, the lobes triangular-linear, falcate, 20–16 mm. long; filaments glabrous, free from the corolla; anther tube 10 mm. long, somewhat pilose along the commissures, naked at the orifice or the 2 lower anthers inconspicuously pilose at the tip. Neg. 31000.

Cajamarca: Cutervo, *Jelski* 71, 75, type.—Without locality: *Weberbauer*, type of *S. megalandrus*.

26. **Siphocampylus dependens** (R. & P.) G. Don, Gen. Syst. 3: 704. 1834. *Lobelia dependens* R. & P. ex G. Don, loc. cit. *L. rugosa* Presl, Prodr. Monogr. Lobel. 34. 1836. *S. rugosus* A. DC. in DC. Prodr. 7: 399. 1839.

A climbing shrub, the branches pendent, tomentose upward; petioles about 15 mm. long; leaf blades ovate-lanceolate, 8–13.5 cm. long, 2.3–4.5 cm. wide, gradually tapering to the acuminate tip, rounded to subcordate at the base, salient-denticulate, coriaceous, glabrous and glossy above, tomentose beneath; pedicels axillary, 5–6.5 cm. long; floral leaves foliaceous, the upper ones often lanceolate and much smaller and the inflorescence then almost racemose; hypanthium turbinate, tomentose; sepals linear, 1 cm. long, entire, spreading, tomentose; corolla purple, tomentulose, 36 mm. long, the lobes triangular-linear, about 12 mm. long; filaments glabrous; anther tube white-pubescent above, 7 mm. long. Neg. 27252.

Without locality: *Parón* 85, type.—Huánuco: Yanano, in low montaña, sunny slopes, 1,800 meters, 4947. Panao, 2205. Pampayacu, *Kanehira* 196. Tomaiquichua, 2426.—Junín: Prov. Tarma, mountains west of Huacapistana, among bushes, 2,300–2,400 meters, *Weberbauer* 2167. Prov. Jauja, valley of Río de Comas, 2,600–2,700 meters, *Weberbauer* 6613.

26a. **Siphocampylus dependens** var. **undulatus** E. Wimm. Repert. Sp. Nov. 22: 209. 1926.

Leaves gray-tomentose beneath; pedicels 7–10 cm. long, without bractlets; sepals 8–15 mm. long, divaricate to reflexed, denticulate; corolla red with yellow mouth, 30–46 mm. long; anther tube glabrous.

Cuzco: Urubamba Valley, San Miguel, Nucjchu, 1,800 meters, *Cook & Gilbert 1161*, type. Urubamba Valley, 2,050 meters, *Herrera 2009, 2658*. Urubamba Valley, Cedrobamba, 2,200 meters, *Herrera 1556*. Machupicchu, 2,200 meters, *Herrera 3215, 3280*.

27. ***Siphocampylus divaricatus*** Benth. Pl. Hartweg. 138. 1844.

Shrubby, somewhat climbing, quite glabrous; petiole 1 cm. long; leaves oblong-elliptic, rarely ovate-oblong, 4 cm. long, 2 cm. wide, obtuse, obtuse or shortly cuneate at the base, remotely denticulate, thickish, glossy; flowers racemose, with small, foliaceous bracts or often the lower flowers in the axils of the upper leaves; pedicels secund, 1 cm. long; hypanthium turbinate, with 5 dentiform lobes; corolla scarlet, straight, about 48 mm. long, the lobes linear, about 12 mm. long; stamen tube glabrous, 50 mm. long. Neg. 27253.

Peru: Not yet collected. Ecuador (mountains near Loja, *Hartweg 774*, type).

28. ***Siphocampylus Dossennus*** E. Wimm. Notizbl. Bot. Gart. Berlin 10: 742. 1929.

Stem herbaceous, the branches puberulent above; petioles stout, 5 mm. long; leaves firm, oblong, 6 cm. long, 1.9 cm. wide, acute, obtuse at the base, the margin undulate and denticulate, rugose and subhirtellous above, reticulate and hirtellous beneath; flowers in the axils of small leaves, corymbose-crowded at the top; pedicels densely puberulent, 10–18 mm. long, with 2 small bractlets above the base; hypanthium hemispheric-turbinate, puberulent, the lobes 5–6 mm. long, sublinear, denticulate, recurved at the apex; corolla blood-red, glabrous, 46 mm. long, the tube 33 mm. long, abruptly and strongly curved 1 cm. above its base, the lobes sub-linear, about 12 mm. long; stamen tube glabrous.

Apurímac: Prov. Abancai, Quebrada de Antilla, *Raimondi 9692*, type.

29. ***Siphocampylus Elfriedi*** E. Wimm. Repert. Sp. Nov. 38: 75. 1935.

A rough, branched shrub; leaves firm, tuberculate-hirtellous, lanceolate, 5 cm. long, 1 cm. wide, acute, narrowed at the base into a petiole 2–5 mm. long, the margin callous-denticulate; flowers in the axils of the upper leaves; pedicels 7 cm. long, tuberculate-hirtellous, bibracteolate at the base; hypanthium turbinate; sepals

sublinear, denticulate, somewhat spreading, 8 mm. long; corolla nearly rose-colored with greenish yellow lobes, tuberculate-hirtellous, 43 mm. long, the lobes sublinear, 9–7 mm. long; stamen tube glabrous.

Cuzco: Paso de Tres Cruces, Cerro de Cusilluyoc, rocky banks and knolls on paramo, 3,800–3,900 meters, *Pennell 13841*, type. Valle de Pillahuata, mountains of Paucartambo, *Herrera 3326*. Paucartambo, 4,000 meters, *Soukup 382*.

30. **Siphocampylus fissus** Gleason, *Torreya* 25: 95. 1925.

Stem woody, twining, scabrous-pubescent above; petioles stout, 4–6 mm. long; leaf blades coriaceous, shining above, reticulate and scabrous-pubescent beneath, broadly ovate-oblong, 20–27 mm. long, 12–18 mm. wide, broadly rounded at the apex, truncate or broadly rounded at the base, subrevolute at the cartilaginous margin, sharply and saliently denticulate; pedicels axillary, 15 mm. long, densely pubescent, forming a leafy raceme; hypanthium turbinate, densely pubescent; sepals oblong, rounded at the apex, 1.5 mm. long, thinly pubescent; corolla pale yellowish green, the tube densely pubescent, 10 mm. long, 3–4 mm. wide when pressed, the lobes closely pubescent, narrowly linear, the upper 23 mm. long, the lower a little shorter; filaments puberulent above; anther tube 10 mm. long, glabrous.

Huánuco: Playapampa, 2,700 meters, *4863*, type.

31. **Siphocampylus flagelliformis** A. Zahlbr. *Bull. Torrey Club* 24: 380. 1897. *S. altiscandens* Gleason, op. cit. 48: 198. 1921.

A climbing shrub with slender, striate, scabrellate branches; leaves on petioles 3 mm. long, coriaceous, short-hirtellous above, hirtellous beneath, especially on the veins, ovate-oblong, 7 cm. long, 3 cm. wide, subacute at the tip, subrounded at the base, remotely callous-denticulate; inflorescences racemose, the bracts small, filiform, the lower flowers often in the axils of foliaceous bracts or of normal leaves; pedicels 10–12 mm. long, rough-hirtellous; hypanthium turbinate; sepals triangular, 2 mm. long, denticulate; corolla narrow, carmine or rose-colored, glabrous, 30–35 mm. long, the lobes linear, about 8 mm. long; filaments glabrous; anther tube 5 mm. long, pilose at the orifice.

Peru: Probably. Bolivia (Yungas, *Rusby, 646*, type; *Bang 2553*).

32. **Siphocampylus floribundus** A. Zahlbr. *Bot. Jahrb.* 37: 460. 1906.

Branches climbing, pendent, striate, scabrous; petioles 7–10 mm. long; leaf blades ovate-oblong to oblong, 3–6 cm. long, 1.5–2.5 cm.

wide, obtuse at the apex, acute at the base, slightly revolute at the margin, callous-denticulate, coriaceous, glabrous above, rough-subhirtellous beneath; racemes terminal, secund, many-flowered; bracts subulate; pedicels 20–25 mm. long, densely and minutely strigose; hypanthium obconic; sepals dentiform; corolla greenish suffused with purplish, hirtellous, 32 mm. long, the tube narrow, 10 mm. long, the lobes linear, about 17 mm. long, at first spreading, finally recurved; filaments 23 mm. long, glabrous; anther tube 7 mm. long, 1.5 mm. wide, pilose in the fissures. Neg. 31002.

Huánuco: Prov. Huamalíes, mountains southwest of Monzón, 2,400–2,500 meters, *Weberbauer 3421*, type.

33. *Siphocampylus foliosus* Griseb. var. *subcanus* E. Wimm., var. nov.

Herba valida, apparenter erecta, simplex, 60–90 cm. alta; caulis digiti crassitie, medullous, obtuse angulatus, inferne glabrescens, superne pubescens, foliosus; folia inferiora breviter petiolata, ovato-oblonga, superiora oblonga et sessilia, summa saepe lanceolata et nonnunquam in bracteas transeuntia; lamina apice subacuta et mucronulata, basi truncata usque obtusa, margine dense et tenuiter denticulata, membranacea, supra sparsius, subtus densissime hirtella et subcana; folia inferiora 13 cm. longa, 4 cm. lata, cetera 10–7 cm. longa, 2.2–1 cm. lata; flores in racemo foliato, subdenso; folia floralia superiora quandoque bracteiformia et pedicello breviora; pedicelli 20–35 mm. longi, puberuli; hypanthium hemispherico-turbinatum, puberulum, ca. 4 mm. diam; lobi calycis anguste triangulares, plerumque integri, puberuli, 2–3 mm. longi; corolla rosea, subpubescens vel glabrata, 3–4 cm. longa, tubus supra basin parum attenuatus, dein leviter ampliatus et in lobos 5 lineares, 12–15 mm. longos partitus; filamentarum et antherarum 7 mm. longarum tubus glaber, antherae 2 inferiores piloso-penicillatae in apice.

Puno: In collibus graminosis prope Ayapata, *Lechler 1940*, type in herb. Univ. Goettingen. Lago Titicaca, *Seler 135* p. p. Frequent in Bolivia.

The type form differs by the leaves, which are not gray-tomentulose beneath but hirtellous, and the smaller (25 mm. long), glabrous corolla. Also the leaf tip is gradually acute.

34. *Siphocampylus Goebelii* E. Wimm. Repert. Sp. Nov. 38: 76. 1935.

Branches pubescent above; petioles puberulent, 15–20 mm. long; leaf blades thin, plane, glabrate above, puberulent beneath

along the veins, elliptic to ovate-elliptic, 11–13 cm. long, 5.5–7 cm. wide, short-acuminate, subrounded at the base, remotely denticulate; pedicels axillary, about 9 cm. long, sparsely puberulent; hypanthium hemispheric; sepals linear, entire, erect, 4 mm. long; corolla violet(?), sparsely puberulent, 28 mm. long, the lobes linear, about 10 mm. long; filaments glabrous; anther tube 5 mm. long, glabrous.

Without locality: *Haenke*, type.

35. *Siphocampylus grandiflorus* E. Wimm. Repert. Sp. Nov. 19: 257. 1924.

A climbing shrub, fulvous-tomentose on the upper parts; petioles 7–12 mm. long; leaf blades ovate to ovate-oblong, 8–12 cm. long, 3–5 cm. wide, acuminate, cordate to rounded at the base, repand-denticulate, sparsely beset above with forked hairs, fulvous-tomentose (villous, fasciculate hairs) beneath; flowers axillary, crowded at the top; pedicels about 7 cm. long, floccose; hypanthium short-turbinate; sepals linear, 8–9 mm. long, subdenticulate, divaricate to reflexed; corolla scarlet, the lobes yellow, the tube straight, 5 cm. long, the lobes lanceolate, about 15 mm. long; stamens glabrous, the anther tube 9 mm. long.

Ayacucho: Prov. Huanta, road from Tambo via Osno to Río Apurímac, 2,800 meters, *Weberbauer 5618*, type.

36. *Siphocampylus heliades* E. Wimm. Notizbl. Bot. Gart. Berlin 10: 744. 1929.

Stem shrubby, pubescent above; petioles 8–15 mm. long, pubescent; leaf blades elliptic, 12 cm. long, 5.8 cm. wide, acute, subrounded at the base, slightly revolute at the margin, callous-denticulate, rugose, glossy and glabrescent above, reticulate and subpubescent beneath; flowers axillary, corymbose at the summit, the subtending leaves oblong to lanceolate, 50–65 mm. long, 10–22 mm. wide; pedicels 5–7 cm. long, villous at the base, otherwise glabrescent; hypanthium hemispheric or turbinate; sepals sublinear, entire, subciliate, spreading, 6 mm. long; corolla red and yellow(?), glabrous, 38 mm. long, the lobes about 12 mm. long; stamen tube glabrous, the anthers 6 mm. long.

Junín: Road between Punto and Andamarca, *Raimondi 8763*, type.

37. *Siphocampylus Helmuti* E. Wimm. Notizbl. Bot. Gart. Berlin 10: 745. 1929.

Branches climbing, slender, grooved, tuberculate, puberulent above; petioles 5 mm. long, tortuous; leaves oblong-ovate, 44 mm.

long, 16 mm. wide, gradually tapering to the subacuminate tip, rounded at the base, callous-denticulate, glabrous and somewhat shining above, subpuberulent on the prominent principal veins, the venation inconspicuous; flowers in the axils of small leaves (22 mm. long, 10 mm. wide), nearly forming a corymbose raceme; pedicels 25–30 mm. long, puberulent, with 2 bractlets above the base; hypanthium turbinate; sepals subulate, entire, 2.5 mm. long, puberulent; corolla red, glabrous, 6 cm. long, the lobes sublinear, 18 mm. long; stamen tube glabrous.

Junín: Road to Pangoa, between San José and Cueva de La Achira, *Raimondi* 8777, type.

38. **Siphocampylus Humboldtianus** (Presl) A. DC. in DC. Prodr. 7: 398. 1839. *Lobelia Humboldtiana* Presl, Prodr. Monogr. Lobel. 35. 1836. *S. pubescens* Benth. Pl. Hartweg. 139. 1844, p. p.

A suffruticose, climbing, pubescent plant; petioles 6–20 mm. long; leaves ovate-elongate, 5.5–8 cm. long, 2–3 cm. wide, gradually tapering to the acute tip, subcordate to truncate at the base, denticulate, glabrate above, pubescent beneath; flowers axillary; pedicels 4–7 cm. long; hypanthium turbinate; sepals triangular, 5–7 mm. long, entire; corolla red(?), 35 mm. long, the lobes narrowly triangular, falcate, unequal, the upper about 13, the lower 7 mm. long; filaments pubescent; anther tube pilose.

Without locality: *Humboldt*, type. Ecuador (Prov. Loja, in mountains, *Jameson*. In the mountains of Paccha, *Hartweg* 780).

38a. **Siphocampylus Humboldtianus** var. *ovatus* E. Wimm., var. nov. *S. pubescens* Benth. loc. cit. pro parte.

Folia late ovata, 5–6 cm. longa, 3.5–4 cm. lata, basi rotundata; corolla major, 45 mm. longa; labium inferius videtur trifidum. Neg. 31018.

Ecuador: *Hartweg* 780 (type of *S. pubescens* in herb. Cambridge; cotype in herb. Berlin).

39. **Siphocampylus Jelskii** A. Zahlbr. Ann. Hofmus. Wien 6: 441. 1891.

Stem suffruticose, erect, brownish-pubescent; leaves sessile, very dense, reflexed, sublinear, 11–13 cm. long, 0.6–0.8 cm. wide, sub-obtuse at the apex, broader at the base, scabrellate and rugose above, hirtellous beneath; flowers axillary, crowded at the summit; pedicels about 10 cm. long, puberulent, somewhat shorter than the subtending, stiff-erect leaves; hypanthium obconic, strongly 10-nerved, puberu-

lent, about 9 mm. long; sepals narrowly triangular, 22–24 mm. long, denticulate, somewhat revolute, erect; corolla (form b) 4 cm. long, puberulent, its tube 16 mm. long, 15 mm. wide at the throat when pressed, the lobes sublinear-acute, falcate, 3–2 cm. long; filaments 45 mm. long, pubescent; anther tube densely hirsute, especially distally. Neg. 31004.

Cajamarca: Between Chota and Cutervo, *Jelski 210*, type.
—Loreto: Pacasmayo to Moyobamba, 3,400–3,500 meters, *Stuebel 54*.

39a. *Siphocampylus Jelskii* f. *eugenius* E. Wimm. Notizbl. Bot. Gart. Berlin 10: 740. 1929.

Corolla larger, 52 mm. long, its tube 27 mm. long, expanded to the throat, the lobes unequal, 25–16 mm. long; filaments long-exserted; anther tube 9 mm. long, 4 mm. wide; pedicels with minute bractlets above the base.

Cajamarca: Between Chota and Cutervo, *Raimondi 3766*, type.

40. *Siphocampylus igneus* (Vell.) E. Wimm. Repert. Sp. Nov. 22: 211. 1926. *Lobelia ignea* Vell. Fl. Flum. 353. 1825. et Fl. Flum. Icon. 8: pl. 128. 1827. *S. corymbiferus* Pohl, Pl. Bras. Icon. 2: 112. pl. 175. 1831. *S. cardiophyllus* Pohl, op. cit. 110. pl. 173.

Stem erect, 60–90 cm. high, nearly simple, leafy; petiole 8–15 mm. long; leaf blades ovate, 4–7 cm. long, 2–4 cm. wide, acuminate, subcordate to rounded at the base, unequally dentate to denticulate, glabrous or puberulent beneath; flowers in a short, nearly umbellate raceme, or the raceme elongate, the flowers then in the axils of normal leaves; pedicels 15–35 mm. long, glabrous; hypanthium broadly turbinate; sepals triangular-linear, recurved at the tip, entire, 4–5 mm. long, mostly glabrous; corolla scarlet, yellow at the throat, glabrous, 40–45 mm. long, the lobes linear, 10–15 mm. long; stamen tube glabrous.

Puno: Sandía, stony places between bushes, 2,100–2,300 meters, *Weberbauer 524*. Bolivia (Yungas, *Bang 256b*. Prov. Larecaja, *Mandon 499*); frequent in Brazil.

40a. *Siphocampylus igneus* var. *gracilis* (Britton) E. Wimm. loc. cit. *S. gracilis* Britton, Bull. Torrey Club 19: 374. 1892. *S. corymbiferus* var. *gracilis* A. Zahlbr. Bull. Torrey Club 24: 384. 1897.

Stem and leaves densely hirtellous.

Peru: Probably. Bolivia (Yungas, *Rusby 640*; *Bang 644*); frequent in Brazil.

41. **Siphocampylus Krauseanus** E. Wimm. Repert. Sp. Nov. 26: 16. *pl.* 72, *f.* 17. 1929.

Branches striate, pubescent, leafy; petioles 6 mm. long, tomentulose; leaf blades oblong, 4–6 cm. long, 0.9–1.8 cm. wide, acute, obtuse at the base, callous-denticulate, firm, rugose and glabrescent above, densely reticulate and tomentulose beneath; flowers in the axils of the leaves, forming almost a leafy raceme; pedicels 25–30 mm. long, tomentulose; hypanthium turbinate to hemispheric, puberulent; sepals sublinear, entire, erect, 6–7 mm. long; corolla 42 mm. long, glabrous, red or yellow, the lobes linear, 10–13 mm. long; stamen tube glabrous. Neg. 9085.

Cuzco: *Herrera* 1207 p. p. (other specimen *Lobelia decurrens* Cav.). Urubamba Valley, Machupicchu, 2,200 meters, *Herrera* 3260.

42. **Siphocampylus Lobbii** A. Zahlbr. Bot. Jahrb. 37: 457. 1906.

A shrub with climbing, slender, narrowly winged, fimbriate-pubescent branches; leaves short-petiolate, small, broadly ovate, 10–17 mm. long, 7–11 mm. wide, acute, subcordate to rounded at the base, minutely denticulate, glabrous above, scabrellate beneath; pedicels axillary, remote, about 1 cm. long, glabrescent; hypanthium broadly turbinate; sepals subulate, 5–6 mm. long, entire, divaricate; corolla carmine, glabrous, 6 cm. long, 8 mm. wide above when pressed, the lobes linear, about 15 mm. long; stamen tube glabrous, the anthers black, 7 mm. long. Neg. 31008.

Without locality: *Lobb*, type.—Huánuco: Posuso, *Pearce* 555 p. p.

42a. **Siphocampylus Lobbii** var. **megodontus** E. Wimm. Repert. Sp. Nov. 29: 88. *pl.* 127, *f.* 6. 1931.

Differing from the type by its deeply dentate leaves, the lobes triangular, acute, 3–4 mm. long.

Huánuco: Posuso, *Pearce* 555 p. p., type.

43. **Siphocampylus loxensis** (Willd.) Vatke, Linnaea 38: 724. 1874. *Lobelia loxensis* Willd. ex Roem. & Schult. Syst. 5: 72. 1819.

Branches angled, hollow, ferruginous-stellate-tomentose, apparently pendent; petioles stout, 1 cm. long; leaves ovate-oblong or oblong, 7–9 cm. long, 3–3.7 cm. wide, obtuse, subcordate at the base, the margin revolute and densely glandular-denticulate, glossy and glabrous above, ferruginous-tomentose beneath; pedicels about 1 cm. long, somewhat longer than the subulate bracts; hypanthium turbinate; sepals subulate, 4–5 mm. long, erect; bud (only this seen!)

tubular, subfalcate, beaked at the apex, tomentose; anther tube 9 mm. long, glabrous.

Peru: Probably occurring. Ecuador (mountains of Loja, *Humboldt*, type in herb. Willdenow 3946, Berlin).

44. *Siphocampylus macropodioides* A. Zahlbr. Bot. Jahrb. 37: 458. 1906.

Branches striate, pubescent; petioles 2–4 mm. long; leaves ovate to ovate-oblong, 5–9 cm. long, 2–3.7 cm. wide, subacuminate, subcordate to rounded at the base, repand-denticulate, membranous, pale and pubescent on the veins underneath; flowers solitary in the axils of the upper leaves, forming a loose, leafy raceme; pedicels 4–5 cm. long, subpubescent; hypanthium depressed-hemispheric; sepals sublinear, entire, 5 mm. long, puberulent, erect; corolla blood-red, glabrous, 4 cm. long, its tube 22 mm. long, the lobes sublinear, 20–15 mm. long; filaments glabrous; anther tube 6 mm. long, often pilose at the base. Neg. 31009.

Ancash: Near Pampa Romas, between Samanco and Carás, 3,500 meters, *Weberbauer* 3201, type.

45. *Siphocampylus macrostemon* (Presl) A. DC. in DC. Prodr. 7: 403. 1839. *Lobelia macrostemon* Presl, Prodr. Monogr. Lobel. 36. 1836. *Centropogon macrostemon* A. Zahlbr. Repert. Sp. Nov. 14: 181. 1915.

Stem herbaceous, branched, puberulent above; leaves sessile or short-petiolate, elongate-lanceolate, 5–8 cm. long, 1.3–1.5 cm. wide, acute, subrounded at the base, unequally denticulate, short-puberulent, above, densely puberulent beneath; pedicels about 3 cm. long, puberulent, with 2 bractlets above the base; hypanthium hemispheric; sepals subulate, entire, erect, 5–6 mm. long; corolla red(?), glabrous, 4 cm. long, the lobes sublinear, about 12 mm. long; stamen tube glabrous. Negs. 27260, 31010.

Huánuco: Mountains, *Herb. Presl*. Without locality, *Pavón* 77.—Department unknown: Sesuya, *Mathews* 3022.

46. *Siphocampylus Matthiaei* A. DC. in DC. Prodr. 7: 405. 1839. *S. Mathewsii* E. Wimm. Repert. Sp. Nov. 19: 258. 1924.

A suffrutescent plant with grooved, pubescent, hollow branchlets; petioles 4–6 mm. long; leaves lanceolate, 14 cm. long, 3.4 cm. wide, subacuminate at both ends, densely callous-denticulate, scarcely hirtellous above, gray-tomentulose beneath; flowers axillary, crowded at the summit; pedicels about 14 cm. long, glabrescent,

with 2 minute bractlets at the base; hypanthium depressed-globose; sepals sublinear, 8–15 mm. long, callous-denticulate, sparsely pubescent, somewhat spreading; corolla (form d) greenish, puberulent, its tube straight, equally wide, 18 mm. long, 4 mm. wide, inflated at the throat, the lobes triangular-linear, subfalcate, deflexed, 22–10 mm. long; filaments glabrous; anther tube 12 mm. long, sparsely pilose, naked at the orifice. Neg. 27262.

Amazonas: Chachapoyas, *Mathews 1672*, type.

47. *Siphocampylus megastoma* E. Wimm. Notizbl. Bot. Gart. Berlin 10: 739. f. 12. 1929.

A tall, branched shrub; petioles 15–20 mm. long, tomentulose; leaves oblong-lanceolate, 13–15 cm. long, 3.5–4.4 cm. wide, subacuminate, acute at the base, densely denticulate, rugose, glabrous above, reticulate and bright ochreous-tomentulose beneath; flowers forming a crowded, terminal raceme; pedicels axillary, compressed, floccose-tomentulose, 12–15 cm. long, bibracteolate at the base; hypanthium half-ovoid, 1 cm. long, tomentulose; sepals linear, 2 cm. long, nearly 3 mm. wide, obtuse, tomentulose, somewhat spreading; corolla (form b) greenish white, tomentulose, the tube 15 mm. long, a little dilated to the (15 mm. wide) throat, the lobes sublinear, unequal, 20–12 mm. long; filaments hirtellous in the upper portion; anther tube 15 mm. long, 7 mm. wide, yellow-hirsute in the commissures, more densely so distally.

Without locality: *Raimondi 2601*, type.

48. *Siphocampylus membranaceus* Britton, Bull. Torrey Club 19: 372. 1892.

A climbing shrub; leaves oblong, 14 cm. long, 4.5 cm. wide, acuminate, obtusely narrowed at the base to the short petiole, densely and finely denticulate, minutely puberulent beneath; inflorescences short, umbel-like, axillary racemes; peduncle stout, solitary, remote, 5 mm. long; pedicels few, about 4 cm. long, striate, hirtellous; bracts inconspicuous; hypanthium short, broadly turbinate; sepals subulate, entire, subreflexed, 1 cm. long; corolla red, nearly straight, glabrous, about 5 cm. long, the lobes sublinear, 12 mm. long; stamen tube glabrous.

Peru: Probably occurring. Bolivia (Yungas, 1,800 meters, *Rusby 651*).

49. *Siphocampylus nobilis* E. Wimm. Repert. Sp. Nov. 26: 12. pl. 72, f. 23. 1929.

A climbing, glabrous, branched shrub; leaves narrowly linear, 6–8 cm. long, 0.2–0.3 cm. wide, acute, narrowed into a petiole 4–5 mm. long, slightly repand and remotely dentate; pedicels axillary, slender, 4–5 cm. long; hypanthium obconic; sepals subulate, 2 mm. long; corolla purple with yellow limb, its tube 35 cm. long, the lobes linear, 8–13 mm. long; stamen tube glabrous. Neg. 31012.

Ayacucho: Prov. Huanta, valley of Río Huancabamba above Shumaya, 2,200–2,300 meters, *Weberbauer 6291*, type.

50. *Siphocampylus obovatus* (G. Don) E. Wimm. Repert. Sp. Nov. 38: 19. 1935: *Tupa obovata* G. Don, Gen. Syst. 3: 700. 1834. *Rapuntium obovatum* Presl, Prodr. Monogr. Lobel. 25. 1836.

Branches hollow, smooth, glabrous; petioles stout, 7 mm. long; leaves obovate-oblong, 6.5–8.5 cm. long, 2.3–3 cm. wide, with a rounded apex and a gradually narrowed base, the margin revolute and callous-denticulate, coriaceous, rugose, glossy, glabrous above, densely hirtellous beneath, the venation reticulate; pedicels axillary, glabrous, 5–8 cm. long; hypanthium depressed-globose, glabrate; sepals oblong-ovate, obtuse, subhirtellous, 2 mm. long; corolla whitish greenish, glabrescent, 3 cm. long, its tube very short, the upper lobes 22 mm. long, the lowest lobe separated nearly to the base of the corolla, 25 mm. long; filaments glabrous, 15 mm. long; anther tube 9 mm. long, pilose at the orifice, but the 2 lower anthers longer-pilose at the tip. Neg. 29451.

Without locality: Ruiz & Pavón sub "*Lobelia incana*," type.

51. *Siphocampylus oblongifolius* Rusby, Mem. Torrey Club 6: 73. 1896.

A climbing, quite glabrous shrub 3–4 meters high; leaves oblong, 10 cm. long, 2–3 cm. wide, acute, obtuse at the base, with a short petiole, entire with remote, callous teeth, coriaceous; pedicels in 2's or 3's in the axils of the leaves, compressed, divaricate, about 2 cm. long; hypanthium turbinate; sepals subulate, entire, reflexed, 5 mm. long; corolla red, 37 mm. long, narrow, the lobes linear, about 1 cm. long; anther tube 6 mm. long, glabrous.

Peru: Possibly occurring. Bolivia (La Paz, *Bang 1461*; *Buchtien 1499*).

51a. *Siphocampylus oblongifolius* var. *crenatus* E. Wimm. Repert. Sp. Nov. 38: 19. 1935.

Leaves with an obtuse, mucronate tip, the margin plane-crenate with a tooth between the crenations; in the axils of the leaves a

stout peduncle 8 mm. long which bears 6-8 pedicels at the top; bracts subulate; pedicels 23-27 mm. long.

Bolivia (La Paz, San Carlos, rain forest, 800 meters, *Troll 2770*).

52. *Siphocampylus onagrius* E. Wimm. Repert. Sp. Nov. 22: 212. 1926.

A climbing shrub, gray-lurid-tomentose above, the tomentum consisting of simple and fasciculate hairs; leaves petiolate (8 mm. long), ovate-triangular, with cordate base, gradually tapering to an acute tip, 7.5 cm. long, 2.5 cm. wide, unequally callous-denticulate, rugose, glossy and glabrous above, gray-tomentose beneath; pedicels axillary, 10 cm. long, with 2 filiform bractlets 3-5 mm. long at the base; hypanthium broadly turbinate; sepals 1 cm. long, linear, denticulate, spreading; corolla purple, with a yellow limb, 55 mm. long, tomentulose, the lobes about 12 mm. long; filaments glabrous; anther tube distally pilose. Neg. 31013.

Mountains of Andamarca, *Mathews 1187*, type.

53. *Siphocampylus Orbignianus* A. DC. in DC. Prodr. 7: 405. 1839; Fl. Serres 6: 15. *pl. 544*. 1850-51; Bot. Mag. *pl. 4713*. 1853. *S. volubilis* Britton, Bull. Torrey Club 19: 372. 1892 et Mem. Torrey Club 6: 72. 1896, non G. Don.

A shrub, the slender branches pubescent toward the ends; petioles 1 cm. long; leaves verticillate, mostly in 3's, oblong to ovate-oblong, 9 cm. long, 3.5 cm. wide, acuminate, narrowed to subrounded at the base, unequally dentate and denticulate, scabrellous above, pubescent beneath; pedicels axillary 3-4 cm. long, bibracteolate at the base; hypanthium broadly turbinate; sepals linear, 12-14 mm. long, divaricate; corolla variable in color, yellowish green and red-shaded or violet or violet-red with bright green lobes, puberulent, 55 mm. long, the lobes 12-7 mm. long.

Peru: Probably. Bolivia (Yungas; Sorata; frequent).

54. *Siphocampylus ovatus* (G. Don) E. Wimm. Repert. Sp. Nov. 38: 18. 1935. *Tupa ovata* G. Don, Gen. Syst. 3: 700. 1834. *Rapuntium ovatum* Presl, Prodr. Monogr. Lobel. 29. 1836. *Lobelia pendulifolia* Presl, op. cit. 35. *S. pendulifolius* A. DC. in DC. Prodr. 7: 398. 1839.

A glabrous, climbing shrub with pendent branches; petiole 5-10 mm. long; leaves coriaceous, glossy, oblong-ovate, 5-6 cm. long, 2.5-3 cm. wide, obtuse, mucronate at the apex, rounded at the base, remotely glandular-denticulate; inflorescence a terminal, secund

raceme; bracts oblong or lanceolate, about 1 cm. long; pedicels about 1 cm. long, bibracteolate at the middle; hypanthium turbinate, its lobes dentiform; corolla pink(?), its tube short, 1 cm. long, the lobes linear, recurved, 22 mm. long; stamen tube glabrous. Neg. 29452.

Peru: *Ruiz & Pavón* 16.—Huánuco: Mountains of Huánuco: *Presl Herb.*—Puno: Prov. Carabaya, rocky hills near Quiaca, *Weddell* 4629.

55. *Siphocampylus pallidus* E. Wimm., sp. nov.

Suffrutex circiter 50 cm. altus; caulis teres, fistulosus, glaber, internodia 1–5 cm. longa; folia coriacea, supra glabra, subtus ad nervos adpresso pubescentia, oblongo-lanceolata, 9 cm. longa, 2.8 cm. lata, acuminata, basi acuta, in petiolum 1 cm. longum attenuata, margine plus minus repanda callose denticulata; flores in axillis foliorum superiorum et summorum diminutorum solitarii; folia floralia lanceolata, circiter 3 cm. longa; pedicelli filiformes, subpubescentes, 4–5 cm. longi; calycis tubus turbinatus, 5-costatus, sepala subulata, glabra, erecta, 5 mm. longa; corolla virenti-lutea, glabra, 3 cm. longa, eius tubus 2 cm. longus, supra basin attenuatus, dein usque ad faucem paullum dilatatus ibique 4 mm. latus; lobi corollae lineares, inaequaliter profunde soluti, 11–12 mm. longi; staminum tubus glaber, antherae 4 mm. longae, 2 inferiores apice barbatae; capsula ellipsoidea, 7 mm. longa, valvis 2 triangularibus apice dehiscens.

Huánuco: Cueva Grande near Posuso, 3,500 meters, *Macbride* 4797, type in Herb. Field Mus.

56. *Siphocampylus palilloanus* E. Wimm. Repert. Sp. Nov. 19: 261. 1924.

Stem suffruticose, obtusely angled, hirtellous; petiole 4–7 mm. long; leaves ovate-oblong, 7 cm. long, 3 cm. wide, more or less cordate at the base, acute at the apex, undulate and callous-denticulate, rugose, shining and subhirtellous above, reticulate and hirtellous beneath; flowers corymbose and some in the axils of the upper leaves; bracts oblong, foliaceous, 10–17 mm. long; pedicels 3–4 cm. long, minutely bracteolate at the base, hirtellous; hypanthium broadly turbinate; sepals narrowly triangular, 4–5 mm. long, few-denticulate, erect; corolla (form c) lilac-red, partly perhaps orange-red, hirtellous, the tube almost equally wide, 15 mm. long, the lower lobe separated to the middle of the corolla, the 4 upper lobes less deeply separated, about 13 mm. long; stamen tube glabrous.

Cuzco: Mount Palillo near Ollantaitambo, 3,000 meters, *Cook & Gilbert* 1908, type.

57. *Siphocampylus parvifolius* E. Wimm., sp. nov. *S. chimaphilophyllus* Schlecht. in Lechler, Berberid. Amer. Austr. 58, 1857. (nomen!).

Frutex parvus, ramosus, glaberrimus; ramuli angulati, scabri, inferne cicatriosi, superne foliosi; folia lanceolata vel paullum oblanceolata, 20 mm. longa, 5 mm. lata, apice acuta, ad basin sensim angustata in petiololum circiter 5 mm. longum, margine leviter crenatâ et denticulis adpressis antrorsum versis munita, firma, supra rugulosa, nitidula, subtus pallida; flores in axillis foliorum superiorum solitarii; pedicelli 4 cm. longi, supra basin bracteolis 2 subulatis ornati; calycis tubus turbinatus, 4 mm. latus, lobi calycini lineares, 3 mm. longi, integri, erecti; corolla rubra, 34 mm. longa, supra basin vix attenuata, ad faucem paullum ampliata ibique 5 mm. lata, lobi sublineares, circiter 15 mm. longi; filamenta glabra, 31 mm. longa; antherarum tubus 5 mm. longus, nigrescens, glaber, antherae 2 inferiores apice pilosopenicillatae.

Puno: Ayapata, in bushes, *Lechler* 1999, type.

58. *Siphocampylus parvilobus* E. Wimm. Repert. Sp. Nov. 38: 21. 1935. *S. brevidens* E. Wimm. op. cit. 29: 89. 1931, non Regel.

Branches apparently climbing, smooth, glabrous; leaves ovate-oblong or lanceolate, 8 cm. long and 3 cm. wide or 5.5 cm. long and 1.5 cm. wide, cuspidate, subrounded to acute at the base, narrowed into a petiole 8 mm. long, the margin remotely denticulate, membranous, glabrous; flowers in an abbreviated raceme, dense, secund, the floral leaves lanceolate, 3–5 cm. long, foliaceous; pedicels axillary, 20–25 mm. long, glabrous; hypanthium turbinate, its lobes dentiform, 1 mm. long; corolla red, glabrous, the tube 32 mm. long, the lobes linear, 8–10 mm. long; stamen tube glabrous, the anthers 5.5 mm. long.

Huánuco: Posuso, 2,700 meters, *Pearce*, type.

59. *Siphocampylus Pavonis* E. Wimm. Repert. Sp. Nov. 29: 89. 1931. *Tupa secunda* G. Don, Gen. Syst. 3: 700. 1834. *Lobelia secunda* R. & P. ex G. Don, loc. cit. *Rapuntium secundum* Presl, Prodr. Monogr. Lobel. 29. 1836, non *S. secundus* E. Wimm., 1924.

A branched, apparently climbing shrub; leaves slightly obovate-oblong to oblong, 4 cm. long, 1–1.4 cm. wide, obtuse, mucronate,

gradually narrowed to a petiole 6–8 mm. long, or obtuse at the base, the margin callous-denticulate and revolute, subcoriaceous, glossy and rugose above, scabrous beneath; flowers in secund, rather dense racemes, the rachis tuberculate; bracts lanceolate, petiolate, 5–15 mm. long; pedicels 8 mm. long, hirtellous or glabrate; hypanthium broadly turbinate, its lobes dentiform, 3 mm. long; corolla pulverulent, its tube 10 mm. long, the lobes linear, probably recurved, about 22 mm. long; stamen tube glabrous, long-exserted. Negs. 27270, 29453.

Without locality: *Pavón*, type.

60. *Siphocampylus penduliflorus* Dcne. var. *asperatulus* E. Wimm. Repert. Sp. Nov. 29: 88. 1931.

Branches climbing, glabrous, finely striate, minutely tuberculate; leaves oblong-ovate, 7.6 cm. long, 3.2 cm. wide, acute, remotely denticulate, subrounded at the base, minutely scabrellous, puberulent beneath; inflorescence a secund, puberulent, short raceme; lower bracts small, foliaceous, the upper ones linear-lanceolate, 5 mm. long; pedicels 12 mm. long, scabrellous-puberulent; hypanthium hemispheric; sepals linear, 4(7) mm. long, entire, spreading; corolla purple, glabrous, 4 cm. long, rather narrow, the lobes sublinear, 12–6 mm. long; stamen tube glabrous. Neg. 27266.

Loreto: Tarapoto, summit of Mount Guayrapurima, *Spruce* 3996. The typical form occurs in Venezuela, Colombia, and Ecuador.

61. *Siphocampylus peruvianus* A. DC. in DC. Prodr. 7: 401. 1839.

A glabrous, climbing shrub; petioles 5–10 mm. long; leaves ovate-lanceolate, 4–6 cm. long, 1–1.4 cm. wide, gradually tapering to the narrow-acute tip, short-cuneate at the base, remotely and sharply serrate, entire toward the base, membranous; pedicels 2 cm. long, axillary; hypanthium broadly turbinate; sepals subulate, 3 mm. long, recurved at the apex; corolla red, subcurved, 45 mm. long, the lobes narrowly triangular, 8–10 mm. long; stamen tube glabrous. Neg. 8559.

Amazonas: Prov. Chachapoyas, *Mathews*, type.

62. *Siphocampylus phaeton* E. Wimm. Repert. Sp. Nov. 29: 83. 1931.

Stem suffruticose, erect, hollow, glabrous, 1.2–1.8 meters high; petioles 12 mm. long; leaf blades oblong, 13 cm. long, 5 cm. wide, subacute at both ends, callous-denticulate, slightly rugose, glossy

and glabrous on the upper surface, reticulate and thinly arachnoid on the lower surface; flowers solitary in the axils of the upper leaves; pedicels 9–10 cm. long; hypanthium hemispheric; sepals sublinear, 12–15 mm. long, denticulate, erect; corolla orange-red or scarlet with golden-yellow lobes, glabrous, its tube 27 mm. long, nearly straight, over the attenuate portion abruptly dilated and then almost equally wide to the throat, the upper lobes about 10, the lower 15 mm. long; stamen tube glabrous.

Ayacucho: Puytac, 3,000–3,300 meters, *Pearce*, type. Prov. Huanta, Putis, Choimacota Valley, *Weberbauer 7531*.

63. *Siphocampylus pozuzensis* E. Wimm. Repert. Sp. Nov. 29: 87. *pl. 118, f. 5*. 1931.

A climbing, pubescent shrub; branches striate, scabrous; petiole 5 mm. long, villous; leaves ovate-oblong, 6.5–8 cm. long, 2.7–3.5 cm. wide, acute, subrounded to obtuse at the base, callous-denticulate, scarcely pubescent above, more densely so beneath; flowers racemose; bracts filiform, 1 cm. long, some flowers in the axils of the uppermost leaves; pedicels 15–20 mm. long, pubescent; hypanthium short, turbinate, 3 mm. long, 7 mm. wide; sepals linear, 8–10 mm. long, few-denticulate, subpubescent, spreading to subreflexed; corolla red, sparsely pubescent, 6 cm. long, the tube nearly straight, 45 mm. long, the lobes sublinear, about 18 mm. long; stamen tube glabrous, 63 mm. long.

Huánuco: Above Posuso, 1,800 meters, *Pearce 532*, type.

64. *Siphocampylus puberulus* E. Wimm. Repert. Sp. Nov. 26: 13. *pl. 72, f. 14*. 1929.

Stem hollow, smooth, puberulent; petiole 2 mm. long; leaves ovate-lanceolate, 9 cm. long, 2.5 cm. wide, rounded at the base, gradually tapering to a cuspidate tip, densely and finely denticulate, glabrate above, densely puberulent beneath; pedicels axillary, puberulent, 1–4 cm. long, the uppermost subtending leaves lanceolate; hypanthium campanulate, puberulent; sepals subulate, 4–5 mm. long, denticulate, erect; corolla violet(?), puberulent, subcurved, 25 mm. long, the lobes about 8 mm. long; stamen tube glabrous. Neg. 31019.

Peru: Probably. Bolivia (Sorata, *Mandon*, type).

65. *Siphocampylus rosmarinifolius* G. Don, Gen. Syst. 3: 704. 1834. *Lobelia purpurea* R. & P. ex G. Don, loc. cit. *L. rosmarinifolia* Presl, Prodr. Monogr. Lobel. 36. 1836.

Stems erect, shrubby, glabrous, shining, 1 meter high; leaves linear, 8–10 cm. long, 0.4–0.5 cm. wide, narrowed to both ends, with petioles 3–4 mm. long, the margin revolute, glossy and rugose above, white-tomentose beneath; pedicels axillary, 3–8 cm. long, glabrous; hypanthium turbinate, wider at the top; sepals subulate, 10–15 mm. long, entire, erect; corolla scarlet with a yellow limb, glabrous, 35–50 mm. long, the lobes linear, 10–20 mm. long; stamen tube glabrous. Neg. 8105.

Peru: *Pavón*; *Dombey* 438; *Lobb* 378.—Junín: Prov. Tarma, on rocks below Palca, 2,400–2,700 meters, *Weberbauer* 1794. Altos de Palca, *Isern* 2289.

66. *Siphocampylus Rusbyanus* Britton, Bull. Torrey Club 19: 372. 1892.

A shrub with stiff, shining branchlets, gray-puberulent at the summit; petioles 7–15 mm. long, puberulent; leaf blades ovate, ovate-oblong, or elliptic, 6–10 cm. long, 3–5 cm. wide, acute, subcordate to rounded at the base, callous-denticulate, coriaceous, rugose and glabrous above, the venation strongly reticulate and lightly puberulent beneath; flowers in the axils of the upper leaves, these reduced in the uppermost portion to oblong bracts; pedicels 4–10 cm. long, puberulent; hypanthium broadly turbinate; sepals sublinear, 1 cm. long, denticulate, divaricate; corolla greenish and suffused with purplish, puberulent, its tube 15 mm. long, nearly equally wide (12 mm. when pressed), the lobes triangular-linear, falcate, 16–10 mm. long; filaments glabrous; anther tube 7 mm. long, slightly villous at the apex, the 2 lower anthers exceptionally not distinctly barbate.

Peru: Probably. Bolivia (Mapirí, *Rusby* 644; *Bang* 2433).

66a. *Siphocampylus Rusbyanus* var. *subtervestitus* A. Zahlbr. Bot. Jahrb. 37: 459. 1906.

A shrub 1 meter high; flowers green, reddish at the base; leaves floccose-pubescent beneath, the venation slightly prominent.

Puno: Between Tambo Azalaya and Tambo Ichubamba, between Sandía and Chunchusmayo, 1,500–1,800 meters, *Weberbauer* 1105, type.

67. *Siphocampylus salviifolius* E. Wimm. Notizbl. Bot. Gart. Berlin 10: 743. 1929.

Branches herbaceous, obtuse-angled, glabrous, pithy; leaves oblong, 7 cm. long, 2 cm. wide, subacute, narrowed at the base to a

petiole 5 mm. long, the margin revolute and callous-denticulate, firm, glabrous, glossy, and rugose above, scarcely arachnoid beneath, the veinlets reticulate; flowers solitary in the axils of the upper leaves; pedicels 6–7 cm. long, floccose or glabrescent; hypanthium depressed-globose; sepals sublinear, 8–10 mm. long, denticulate, somewhat spreading; corolla scarlet, glabrous, its tube straight, 28 mm. long, the lobes sublinear, about 12 mm. long; stamen tube glabrous.

Ayacucho: Prov. Huanta, between Puytac and Aguayunca, entrance to the mountains of Huanta, *Raimondi 10675*, type.

68. *Siphocampylus sanguineus* A. Zahlbr. Bot. Jahrb. 37: 456. 1906.

A climbing, branched shrub; leaves lanceolate, often broader in the lower third, 6–13 cm. long, 0.8–1.3 cm. wide, gradually acuminate, obtuse at the base, with a petiole 5–7 mm. long, the margin unequally denticulate, glabrous except the sparsely pubescent nerves beneath; hypanthium depressed-globose; sepals sublinear, 15–20 mm. long, entire, ciliolate, spreading; corolla blood-red, glabrous, 4 cm. long, the 2 upper lobes 1 cm. long and recurved, the 3 lower often adherent, 7 mm. long; stamen tube villous. Neg. 31021.

Amazonas: Prov. Chachapoyas, eastern wall of the valley of the Marañón above Balsas, 3,200 meters, *Weberbauer 4285*, type. Also in Ecuador.

69. *Siphocampylus scandens* (HBK.) G. Don, Gen. Syst. 3: 703. 1834. *Lobelia scandens* HBK. Nov. Gen. & Sp. 3: 309. 1819. *Lobelia obtusifolia* Willd. ex Roem. & Schult. Syst. 5: 57. 1819.

A climbing shrub with pendent, glabrous branches; leaves oblong, 45 mm. long, 16 mm. wide, obtuse, narrowed at the base into a short petiole, the margin revolute, glandular-denticulate, firm, glabrous; flowers in a long, secund raceme; bracts lanceolate, 5 mm. long; pedicels 8–10 mm. long; lobes of the turbinate calyx dentiform, 2 mm. long; corolla crimson, sparsely hirtellous, about 3 cm. long; anther tube 5 mm. long.

Peru: *Lobb*. Ecuador (near Loja, *Humboldt*, type).

70. *Siphocampylus secundus* E. Wimm. Repert. Sp. Nov. 19: 262. 1924; 29: 88. *pl. 117, f. 10*. 1931.

A quite glabrous, climbing shrub with pendent, angled branches; petioles 10–15 mm. long; leaf blades ovate, 3–5 cm. long, 2.2–3 cm. wide, subacute, broadly rounded to broadly cuneate at the base, the margin narrowly semidiaphanous-callous with callous teeth or lightly

crenate with interspersed teeth; inflorescence a secund, rather dense raceme; bracts small, elliptic, foliaceous, 5–15 mm. long; pedicels about 2 cm. long; hypanthium turbinate; sepals triangular, 2 mm. long; corolla whitish, about 3 cm. long, the tube 5 mm. long, the lobes linear, 23 mm. long; stamens glabrous; anther tube 11 mm. long.

Amazonas: In the Andes near Chachapoyas, *Mathews*, type.

71. *Siphocampylus soraticus* E. Wimm. Repert. Sp. Nov. 38: 23. 1935. *S. elegans* var. *boliviensis* A. Zahlbr. Bull. Torrey Club 24: 381. 1897, p. p.

A climbing shrub with slender, glabrous branches; petioles curved, 1 cm. long; leaves ovate-lanceolate, 7 cm. long, 1.6 cm. wide, gradually tapering to the acute tip, rounded at the base, somewhat remotely callous-denticulate, glabrous; pedicels remote, in the axils of the leaves, 5 cm. long; hypanthium almost none; sepals linear-lanceolate, 19–21 mm. long, 3 mm. wide at the middle, subacute, callous-denticulate, spreading to reflexed; corolla probably red, inconspicuously hirtellous, 6 cm. long, at the throat 10 mm. wide, the lobes linear, about 2 cm. long; stamen tube glabrous, the anthers 9 mm. long.

Peru: Probably occurring. Bolivia (Sorata, *Mandon* 498).

72. *Siphocampylus sparsipilus* E. Wimm. Repert. Sp. Nov. 19: 388. 1924.

A climbing shrub with hollow, terete branches, puberulent toward the ends; leaves elliptic or rarely ovate-elliptic, 7 cm. long, 3 cm. wide, acute at both ends, with a petiole 10–13 mm. long, the margin with dense, callous, salient teeth, sparsely pubescent on both surfaces; pedicels axillary, remote, puberulent, 7–8 cm. long; hypanthium depressed-globose, puberulent; sepals triangular-linear, 8 mm. long, denticulate, subrecurved at the apex; corolla scarlet, glabrous, its tube 4 cm. long, abruptly ampliate above the attenuate portion, the lobes triangular-linear, 15–6 mm. long; stamen tube glabrous.

Peru: Probably occurring. Bolivia (Unduavi, *Rusby* 636).

73. *Siphocampylus Spruceanus* A. Zahlbr. Ann. Hofmus. Wien 6: 443. 1891.

Branches woody, angled, densely leafy, scabrous and hirtellous; petioles 2 mm. long; leaves linear-lanceolate, 2–4 cm. long, 2.5–9 mm. wide, acute at the apex, acute to rounded at the base, remotely callous-denticulate, coriaceous, glabrous and glossy above, scabrous-hirtellous beneath; pedicels axillary, 20–35 mm. long, scabrous-hirtellous; hypanthium obconic, hirtellous; sepals subulate, 5 mm.

long, entire or with 1 callous tooth, scarcely hirtellous, erect; corolla garnet-red or white, glabrous, 33 mm. long, the lobes linear, 4–6 mm. long; stamen tube glabrous. Neg. 31024.

Loreto: Mountains north of Moyobamba, in sandy soil, 1,000–1,100 meters, *Weberbauer* 4611.—San Martín: Near Tarapoto, *Spruce* 4860, type. Zepelacio, 1,200–1,600 meters, *Klug* 3277.

74. *Siphocampylus stenolobus* E. Wimm. Repert. Sp. Nov. 38: 24. 1935.

A climbing shrub; leaves ovate-oblong, 9 cm. long, 3 cm. wide, acuminate-cuspidate, rounded at the base, the margin densely denticulate, the pubescence above simple, beneath stellate, especially on the nerves; petioles 8–16 mm. long, often scarcely pubescent; flowers solitary in the leaf axils; pedicels 7–10 cm. long, glabrous or pubescent below the ovary, minutely bibracteolate at the base; hypanthium very short or none; sepals linear, 15–22 mm. long, few-denticulate, spreading to reflexed; corolla blood-red, yellow toward the summit, scarcely stellate-pilose, 45 mm. long, the lobes sublinear, about 1 cm. long; stamen tube glabrous.

Cuzco: Pillahuata, Cerro de Cusilluyoc, in thickets, 2,500–3,000 meters, *Pennell* 13913, type.

75. *Siphocampylus subcarnosus* Benth. Pl. Hartw. 138. 1844.

A glabrous, climbing shrub with pendent branches; petioles stout, 11 mm. long; leaves oval, 4 cm. long, 3 cm. wide, rounded at the apex, subrounded at the base, the margin remotely callous-denticulate and revolute, subcarnose, glabrous; inflorescence a terminal, dense, secund raceme; bracts mostly fallen, otherwise minute; pedicels 12 mm. long; hypanthium turbinate, its lobes dentiform; corolla red, narrow, 37–40 mm. long, the lobes linear, about 7 mm. long; anther tube 4–5 mm. long. Neg. 27271.

Ecuador(?): *Hartweg* 776, type.

76. *Siphocampylus subcordatus* Rusby, Bull. N. Y. Bot. Gard. 8: 121. 1912.

A shrub about 2 meters high with elongate, stout, glabrous branches; petioles 3–8 mm. long, often tortuous; leaves ovate, 4–9 cm. long, 2–4.7 cm. wide, obtuse, subcordate to truncate at the base, slightly crenate with callous teeth, membranous, glabrous and glossy above, scabrous and minutely hirtellous on the veins beneath; pedicels in the axils of normal or (at the end) elliptic bracts, 35–50 mm. long; hypanthium hemispheric; sepals 12 mm. long, linear,

entire, spreading; corolla purple(?), nearly straight, puberulent, 40–45 mm. long, the lobes linear-triangular, falcate, 15–11 mm. long; filaments pubescent; anther tube 9 mm. long, white-pilose on the commissures.

Peru: Not yet found. Bolivia (La Paz, *Williams 1507*; *Buchtien 7529*).

76a. *Siphocampylus subcordatus* var. *dives* E. Wimm., var. nov.

Folia glaberrima, laevia, nitida, apice acuta; sepala longiora, 20 mm. longa, patentia; corolla 56 mm. longa, minute hirtella.

Bolivia; Mapirí, in rain forest, 600 meters, *Troll 2759* (type in Herb. Berlin).

77. *Siphocampylus superbus* A. Zahlbr. Bot. Jahrb. 37: 455. 1906.

Stem stout, subterete, unbranched, to 3 meters high, scabrellous, with dense scars, in the upper portion angled, pubescent; leaves dense, the lower at last reflexed, narrow-lanceolate, 16–18 cm. long, 1.3–2 cm. wide, long-acuminate, narrowed at the base into a petiole 8–12 mm. long, the margin lightly crenate and revolute, rugulose and puberulent above, pubescent beneath; flowers axillary, numerous, crowded at the summit; pedicels 14 cm. long, pubescent; hypanthium obconic, pubescent, 15 mm. long, 12 mm. wide; sepals triangular-linear, 20–30 mm. long, denticulate, pubescent, erect; corolla pale greenish, 6 cm. long, puberulent, the tube straight, slightly attenuate at the middle, 25 mm. long, the lobes sublinear-acute, about 3 cm. long; filaments pubescent, free from the corolla; anther tube 15 mm. long, 6 mm. wide, densely white-villous. Neg. 31025.

Cajamarca: Above Hacienda La Tahona near Hualgayoc, 3,100–3,300 meters, *Weberbauer 4019*, type.

78. *Siphocampylus tortuosus* A. Zahlbr. Bot. Jahrb. 37: 459. 1906.

A twining shrub; branches scabrellous-pilose, hollow; petioles hirtellous, 10–15 mm. long; leaf blade ovate to elliptic, 7–14 cm. long, 3–6 cm. wide, acuminate, subrounded to acute at the base, the margin subrepand and salient-denticulate, glabrous above, sparsely pubescent beneath; inflorescence a loose, secund raceme, the lower pedicels in the axils of normal leaves, the others in the axils of subulate bracts 2–3 cm. long, hirtellous; hypanthium obconic;

sepals subulate, 6 mm. long, hirtellous, reflexed; corolla bright purple, hirtellous, 6 cm. long, the lobes linear, about 17 mm. long; filaments glabrous; anther tube 7 mm. long, scarcely pilose. Neg. 31026.

Loreto: Mountains north of Moyobamba, 1,500 meters, *Weberbauer 4646*, type.

79. *Siphocampylus tupaeformis* A. Zahlbr. Ann. Hofmus. Wien 6: 440. 1891. *S. resinosus* Schlecht. in Lechler, Berberid. Amer. Austr. 58. 1857 (nomen!).

Stem suffruticose, 1–2 meters high, angled, pubescent, densely leafy; leaves subsessile, ovate-oblong, 5.5–11 cm. long, 2–4.8 cm. wide, gradually tapering to the acute tip, truncate to rounded at the base, subcoriaceous, the margin densely and irregularly serrulate-denticulate, scabrellous-hirtellous above, densely pubescent and reticulate beneath; flowers forming a long, dense, leafy raceme, the subtending leaves gradually passing into lanceolate bracts 5–2 cm. long; pedicels 15–40 cm. long, hirtellous; hypanthium hemispheric to turbinate, 5 mm. wide; sepals triangular, 3–4 mm. long, entire or with 1 tooth, hirtellous; corolla orange-red on the upper side, yellow on the lower, or fiery red, puberulent, 35–40 mm. long, the lobes linear, 10–15 mm. long; filaments glabrous; anther tube gray, 5 mm. long, glabrous or with few hairs at the base. Neg. 9103.

Cuzco: Urubamba Valley, 2,800–3,000 meters, *Herrera 149, 2285, 3027, 3392*. Colquipata, rocky, bush-covered banks of Río Quencomayo, 3,200 meters, *Pennell 13787*. Sacsahuamán, 3,500 meters, *Pennell 13541*.—Puno: Azángaro, on rocks, 4,000 meters, *Weberbauer 486*. Prov. Sandía, above Cuivenyo, on rocks, 3,700 meters, *Weberbauer 922*. Granja Salcedo, 4,000 meters, *Soukup 69*.—Without locality, *Lechler 1741*. Bolivia.

79a. *Siphocampylus tupaeformis* var. *reduncus* E. Wimm. Torrey 25: 95. 1925.

Differing from the type by the leaves, which on the lower surface are whitish by a very dense pilosity, the venation sharply prominent; pedicels and calyx glabrescent; sepals linear, 5 mm. long, recurved at the apex; corolla glabrous.

Cuzco: Machupicchu, 2,100 meters, *Cook & Gilbert 1020*, type.

79b. *Siphocampylus tupaeformis* var. *dulcis* E. Wimm. Repert. Sp. Nov. 29: 84. 1931.

Differing from the type by the thin-membranous leaves and minute pubescence.

Cuzco: Above Urubamba in open landscape mixed with herbs, grasses, and shrubs, 3,500 meters, *Weberbauer 4920*, type.

80. *Siphocampylus Vatkeanus* A. Zahlbr. Bull. Torrey Club 24: 377. 1897.

An erect shrub to 2 meters tall, the upper parts of the branches floccose-pulverulent; leaves ovate-oblong, 8–14 cm. long, 2.5–3.8 cm. wide, acuminate, narrowed at the base into a petiole 8–12 mm. long, the margin densely callous-denticulate, subcoriaceous, smooth and glabrous above, pale beneath and especially on the veins pubescent-pulverulent; pedicels axillary, pulverulent, 8–12 cm. long; hypanthium broadly turbinate; sepals sublinear, 10–12 mm. long, denticulate, erect; corolla greenish white, scabrellous, the tube straight, 15 mm. long, slightly attenuate at the middle, the lobes linear, 22 mm. long; filaments glabrous; anther tube gray, 11 mm. long, glabrous or scarcely short-pilose. Neg. 27274.

Cuzco: Paso de Tres Cruces, Cerro de Cusilluyoc, in thicket, shrub zone below paramo, 3,500–3,800 meters, *Pennell 13893*.—Puno: Prov. Sandía, bushy places, 3,100 meters, *Weberbauer 868*. Bolivia (Sorata, *Mandon 497*, type).

81. *Siphocampylus venustus* E. Wimm. Repert. Sp. Nov. 19: 263. 1924.

Stem herbaceous, obtusely angled, subvillous; petioles 3 mm. long; upper leaves subsessile; leaf blades ovate-oblong, 5.2 cm. long, 2 cm. wide, acute at the apex, rounded at the base, the margin unequally serrulate-denticulate, puberulent or glabrescent above, tomentulose beneath; flowers in the axils of leaves or bracts, forming a leafy raceme; pedicels to 2 cm. long, tomentose; hypanthium hemispheric, tomentose; sepals narrowly triangular, 3 mm. long, 1- or 2-denticulate, villous; corolla red, yellow on the ventral half, nearly straight, glandular and slightly villous, 28 mm. long, the lobes linear, about 12 mm. long; filaments glabrous; anther tube gray, 6 mm. long, with 5 small tufts of hairs at the base.

Junín: Near Oroya, *Kalenborn 189*, type.

82. *Siphocampylus versicolor* E. Wimm. Repert. Sp. Nov. 19: 263. 1924.

Stem suffruticose, 1 meter high, angled, sparsely floccose; petioles floccose, 1 cm. long; leaves lanceolate, 8.5–13 cm. long, 2–3.5 cm. wide, acute at both ends, the margin denticulate and narrowly revolute, thickish, rugose, glossy and glabrous above, slightly

arachnoid beneath, the venation reticulate; pedicels axillary, crowded at the summit, 12–15 cm. long, sparsely floccose, bibracteolate nearly at the middle; hypanthium turbinate, ampliate at the top, floccose; sepals linear, 16 mm. long, obsoletely denticulate, sparsely villous, erect; corolla scarlet on the upper side, orange-red on the lower, glabrous, 4 cm. long, the lobes linear, 10–15 mm. long; stamen tube glabrous.

Ayacucho: Prov. Huanta, road from Tambo via Osno to Río Apurímac, 3,400–3,500 meters, *Weberbauer 5561*, type.

83. *Siphocampylus veteranus* E. Wimm. Repert. Sp. Nov. 19: 264. 1924. *S. scabrifolius* Schlecht. in Lechler, Berberid. Amer. Austr. 58. 1857 (nomen!).

A shrub or tree 2–9 meters high, the older bark very corky, leafless except the branch tips; odor skunk-like; leaves lanceolate, 8–9 cm. long, 1.6–2 cm. wide, acuminate to acute at the tip, narrowed into a petiole 8 mm. long, more or less densely denticulate, membranous, glabrous on both surfaces, often scabrellous beneath; pedicels axillary, 10–11 cm. long, with 2 subulate bractlets at the base; hypanthium broadly turbinate; sepals linear, 6–7 mm. long, subentire, glabrous, spreading; corolla greenish white or sometimes reddish toward the base on the upper side, glabrous, its tube 8 mm. long, almost equally wide (7 mm.), the lobes downward gradually deeper disjoined, the upper lobes 20, the lateral 18, the lowest 16 mm. long; stamen tube glabrous; anthers gray, 10 mm. long. Neg. 9087.

Ayacucho: Prov. Huanta, road from Tambo via Osno to Río Apurímac, 3,100–3,400 meters, *Weberbauer 5579*, type.—Cuzco: Paucartambo to Tres Cruces, Cerro de Cusilluyoc, in thicket, 3,200–3,400 meters, *Pennell 14146*.—Huánuco: Upper canyon head, 6 miles south of Mito, 3,150 meters, 1860.—Puno: Tabina, *Lechler 2073*. Prov. Carabaya, *Weddell 4632*.

84. *Siphocampylus Weberbaueri* A. Zahlbr. Bot. Jahrb. 37: 456. 1906.

A shrub to 3 meters high, branched only at the base; stems hollow, terete, glabrescent, whitish-villous toward the ends; leaves dense, membranous, oblong, 12–14 cm. long, 3–4.5 cm. wide, acuminate, narrowed at the base into a tomentose petiole 6–8 mm. long, callous-denticulate, puberulent above, white-tomentose beneath; pedicels axillary, 10–17 cm. long, floccose, bibracteolate at the base; hypanthium depressed-globose, pubescent; sepals linear, entire, denticulate, pubescent, 9–15 mm. long; corolla (form d) greenish white, reddish-

suffused, pubescent, its tube 16 mm. long, 4 mm. wide at the middle, the lobes sublinear, falcate, 22–15 mm. long; filaments glabrous; anther tube 13 mm. long, 4 mm. wide, pilose, naked at the apex. Neg. 31029.

Cajamarca: Above Hacienda La Tahona near Hualgayoc, 3,100–3,300 meters, *Weberbauer 4019*, type.

85. *Siphocampylus Williamsii* Rusby, Bull. N. Y. Bot. Gard. 8: 122. 1912.

Branches slender, angled, tuberculate, glabrous; leaves lanceolate to lance-linear, 4–7 cm. long, 0.6–0.8 cm. wide, acute at both ends, narrowed to a short petiole or subsessile, the margin remotely callous-denticulate and narrowly revolute, firm, glabrous; pedicels solitary in the axils of somewhat smaller leaves, 2–7 cm. long; hypanthium turbinate; sepals 5–6 mm. long, triangular-linear, obtuse, with 1 callous tooth on either side; corolla rose-purple, glabrous, straight, 35 mm. long; anther tube glabrous, 5 mm. long.

Peru: *Haenke*. Bolivia.

8. LAURENTIA Michx.

Slender herbs, erect or cespitose. Leaves petiolate, rarely sessile, alternate, rarely radical and rosulate. Flowers in a terminal, loose raceme or solitary in the leaf axils. Calyx lobes 5. Corolla tube entire, often funnel-shaped, mostly straight, its limb 5-parted, bilabiate or somewhat regular. Filaments connate, distinct at the base, free from the corolla (*Eulaurentia*) or adnate to the corolla tube at about the middle (*Isotoma*), included in the corolla tube. Two lower anthers setigerous or penicillate-pilose at the apex. Capsule obovoid or about cylindric, 2-locular, dehiscent by 2 valves at the summit, mostly inferior, rarely superior (as in the species of Peru). Seeds ellipsoid, brown, hardly 1 mm. long.—Distributed chiefly in South Africa, Australia, from Mexico to Bolivia, and in the Mediterranean lands. In Peru as yet only 2 species are known.

Corolla white, large, the tube narrow-cylindric. 1. *L. longiflora*.

Corolla small, violet or pink. 2. *L. micrantha*.

1. *Laurentia longiflora* (L.) E. Wimm., comb. nov., non Schlechter. *Lobelia longiflora* L. Sp. Pl. 930. 1753; Bot. Mag. pl. 2563; Bot. Reg. pl. 1200. *Rapuntium longiflorum* Mill. Dict. ed. 8. No. 7. 1768. *Hippobroma longiflora* G. Don, Gen. Syst. 3: 717. 1834. *Isotoma longiflora* Presl, Prodr. Monogr. Lobel. 42. 1836.

An erect, coarse, pubescent herb 30–60 cm. high; leaves oblong-lanceolate to obovate-lanceolate, 8–17 cm. long, 2–5 cm. wide, acute, narrowed at the base into the indefinite, margined petiole, the margin repand-dentate to irregularly sinuate-dentate; pedicels solitary in the axils, 5–8 mm. long, with 2 bractlets above the base; hypanthium obconic, 9 mm. long; sepals linear, denticulate, erect, 10–13 mm. long; corolla white, inodorous, puberulent, the tube entire, cylindric, 7–11 cm. long, 2–3 mm. wide, the 5 lobes nearly equal, linear-lanceolate, glabrous within, about 2 cm. long; filaments glabrous, adnate at about the middle of the corolla tube; anther tube 4 mm. long, hairy at the apex; capsule oblong-ovoid, pendulous.—Flowering nearly throughout the year. A very poisonous plant!

Loreto: Iquitos and Caballo-cocha on the Amazon River, *Williams 1429, 2126*. Yurimaguas, lower Río Huallaga, waste places, 135 meters, *Killip & Smith 29117*. Brazil to the West Indies and Mexico. "Revienta-caballos."

2. *Laurentia micrantha* (HBK.) A. Zahlbr. Bull. Torrey Club 24: 386. 1897, non A. DC. in DC. Prodr. 7: 411. 1839. *Lobelia micrantha* HBK. Nov. Gen. & Sp. 3: 316. 1819; A. DC. op. cit. 373. *Lobelia subtilis* HBK. op. cit. 317. *Lobelia ruderalis* et *L. Draba* Willd. ex R. & S. Syst. 5: 56, 67. 1819. *Rapuntium micranthum* et *R. subtile* Presl, Prodr. Monogr. Lobel. 25. 1836. *Lobelia parviflora* Mart. & Gal. Bull. Acad. Brux. 9: 41. 1842. *Lobelia minutiflora* Kunze, Linnaea 16: 318. 1842. *Laurentia michoacana* Robinson, Proc. Amer. Acad. 26: 167. 1891.

An annual, erect herb 8–30 cm. high; stem angled, simple and ramose, glabrous or puberulent; lower leaves ovate to ovate-oblong, 10–35 mm. long, 8–23 mm. wide, the upper gradually reduced, lanceolate, sessile, obtuse to acute at the tip, rounded to cuneate at the base, dentate, glabrous to sparsely pubescent; flowers in a terminal, loose raceme; bracts linear to subulate, shorter than the (5–12 mm. long) pedicels; ovary superior, oblong-ovoid; sepals linear, erect, mostly glabrous, 2 mm. long; corolla 4–6 mm. long, its tube pale, the lobes dull bluish violet or pale pink; anther tube hardly 1 mm. long, the 2 lower anthers pilose at the tip; capsule oblong-ovoid, superior, bearing at the tip the faded corolla, 5 mm. long, 2 mm. wide. Neg. 9110.

Amazonas: Andes of Chachapoyas, *Mathews 908*.—Ayacucho: Prov. Huanta, below Yanamonte, *Weberbauer 5605*. Aina, between Huanta and Río Apurímac, open hillside, 750–1,000 meters, *Killip & Smith 22684*.—Cuzco: Ollantaitambo, 3,800 meters, *Cook &*

Gilbert 348. Río Paucartambo below Paucartambo, moist, grassy slope, 2,900–3,200 meters, *Pennell 13798*.—Huánuco: Yanahuanca, shrubby southern slope, *1166*. María del Valle, 2,100 meters, *3555*. Ambo, stony river flat, 2,100 meters, *3196*.—Junín: Uspachaca, southeastern canyon slope, 2,500 meters, *1297*.—Lima: Viso, 2,700 meters, *763*.—Department unknown: Chinchín (*Dombey*, det. A. DC.). Mexico to Bolivia; Chile (?).

2a. *Laurentia micrantha* var. *longibracteata* E. Wimm. Rev. Sudamer. Bot. 2: 104. 1935. *L. pedunculata* Brändeg. Univ. Calif. Publ. Bot. 6: 73. 1914.

Stem, petiole, and sepals ciliate; pedicels 1–2 cm. long, as long as or shorter than the sublinear bracts.

Amazonas: Between Suta and Leimebamba, *Raimondi 1811*. Chachapoyas, *Mathews*.—Cuzco: Ollantaitambo, field along river, 2,850 meters, *Pennell 13681*. Cuzco, *Herrera 2586a*.—Puno: Sandía, 2,200 meters, *Weberbauer 583*. Mexico; Guatemala; Colombia; Venezuela; Ecuador; Brazil; Paraguay.

2b. *Laurentia micrantha* var. *ovatifolia* (Robinson) E. Wimm., comb. nov. *L. ovatifolia* Robinson, Proc. Amer. Acad. 26: 166. 1891.

Lower leaves ovate, subcordate to truncate at the base; bracts much shorter than the pedicels.

Cajamarca: Prov. Jaén, valley of Río Tabaconas near Hacienda Charape, grassy steppe, 1,200–1,300 meters, *Weberbauer 6262*. Mexico.

9. LOBELIA L.

Annual or perennial, slender or stout, low or tall herbs. Leaves alternate, petioled, rarely sessile, undivided, usually with callous teeth at the margin. Flowers solitary in the leaf axils or in terminal racemes, pedicellate. Hypanthium hemispheric or turbinate, inferior or sometimes nearly free, with 5 distinct sepals. Corolla tubular, its tube split on the upper side to the base; limb 5-lobed, bilabiate, the 2 upper lobes smaller, erect to recurved, or sometimes as long as the lower lobes and ascendent; lower lip 3-lobed and spreading, often tuberculate at the base. Filaments free from the corolla, completely or upward connate into a narrow tube. Anther tube cylindric, the 2 lower anthers shorter and barbate at the tip. Style filiform, included in the stamen tube; stigma 2-lobed. Fruit a 2-locular capsule, dehiscent at the apex by 2 valves. Seeds numerous, mostly ellipsoid, very small.—Distributed in both hemispheres.

Stout herbs; leaves oblong, acute, sinuate-dentate, sessile, decurrent;
raceme leafy.....3. *L. decurrens*.

Slender herbs; leaves petioled or sessile; flowers solitary or in lax,
bracteate racemes.

Prostrate, creeping plants; flowers axillary.....5. *L. nana*.

Erect plants; flowers in terminal, lax racemes.

Ovary and capsule nearly superior.....8. *L. xalapensis*.

Ovary and capsule inferior, only the capsule valves overtopping
the calyx lobes.

Corolla lobes linear-acute.....2. *L. collina*.

Corolla lobes obovate.

Glabrous plants.

Plant growing in marshy soil; bracteoles distinct, fili-
form, divaricate; all anthers pilose at the tip.

1. *L. aquatica*.

Plant not of marshes; bracteoles inconspicuous; only the
2 lower anthers barbate.....7. *L. tenera*.

Puberulent or short-hirsute plants.

All anthers barbate at the tip; pedicels with 2 long
bracteoles at the middle.....4. *L. holotricha*.

Only the 2 lower anthers barbate; pedicels without
bracteoles.....6. *L. subpubera*.

1. *Lobelia aquatica* Cham. Linnaea 8: 211. 1833. *L. domin-
gensis* A. DC. in DC. Prodr. 7: 359. 1839. *L. bracteolata* Vatke,
Linnaea 38: 721. 1874.

A quite glabrous plant 8-20 cm. high, growing in aquatic or
marshy places; stems angular, succulent; leaves sessile, linear-
lanceolate, the lower small, ovate, 8 mm. long and 6 mm. wide, or
oblong to lanceolate, 30 mm. long and 3.5 mm. wide, obtuse to
acute, remotely denticulate; flowers axillary to racemose; pedicels
1-3 cm. long, with 2 filiform, divaricate bractlets 2-3 mm. long at
the base; hypanthium turbinate; sepals subulate, 2 mm. long, sub-
erect; corolla 5-6 mm. long, bluish or lilac, white-spotted in the
throat; tube barbate at the orifice; seeds 3-edged.

San Martín: Tarapoto, *Spruce* 4404. More frequent in Vene-
zuela, Brazil, Paraguay, and West Indies.

2. *Lobelia collina* HBK. Nov. Gen. & Sp. 3: 312. 1819. *L. lini-
folia* and *L. phyteumoides* Willd. ex Roem. & Schult. Syst. 5: 57. 1819.

A glabrous, procumbent-ascendent, branched herb; leaves sessile, linear-lanceolate, acute, callous-denticulate, 15–20 mm. long, 2–4 mm. wide; flowers in terminal, secund racemes; bracts linear, as long as the (2–4 mm. long) pedicels; hypanthium semi-ovoid; sepals subulate, entire, erect, 2 mm. long; corolla bluish(?), 1 cm. long, the lobes linear, the upper 5 mm., the lower 3 mm. long.

Without locality: Rare on dry hills, *Humboldt* (Herb. Willd. 3959, type of *L. linifolia*; and 3966, type of *L. phyteumoides*).

3. *Lobelia decurrens* Cav. Icon. 6: 13. pl. 521. 1801, non Roth. *L. foliosa* HBK. Nov. Gen. & Sp. 3: 310. 1819. *Rapuntium decurrens* et *R. foliosum* Presl, Prodr. Monogr. Lobel. 24. 1836.

A coarse, erect, simple herb 80–120 cm. high; stem and leaves glabrous, but the flowers pubescent (type and also *L. decurrens* var. β . A. DC.); leaves oblong, 13 cm. long, 4.5 cm. wide, acute, truncate or narrowed at the base and on the stem broadly dentate-decurrent, the margin deeply, sharply, and often doubly dentate; flowers in a leafy raceme, the subtending leaves above often small and lanceolate, cuspidate; pedicels 8–13 mm. long, pubescent; hypanthium hemispheric, 7 mm. in diameter, pubescent like the 5 lobes, these triangular-linear, 12–15 mm. long, pubescent, deeply linear-dentate; corolla 3 cm. long, purplish lavender, pubescent, the lower lip 3-lobed (lobes narrow-triangular, 5 mm. long), the upper lobes linear, 17 mm. long; anther tube 7 mm. long, glabrous, the 2 lower anthers barbate at the tip.

Ancash: Below Pamparomás, between Samanca and Caraz, near a brook, 2,000–2,400 meters, *Weberbauer* 3188. Apurímac, *Herrera* 1207.—Lima: Between Narkima and Matucana on the margin of a clover field, 2,200–2,370 meters, *Weberbauer* 44. Matucana, 2,400 meters, 99. Obrajillo, *Wilkes Exped.* Along Río Chillón near Viscas, rocky bank, 1,800–2,000 meters, *Pennell* 14317. San Bartolomé, *Rose* 18678.

3a. *Lobelia decurrens* var. *jaensis* E. Wimm., var. nov.

Differt a typo caule et foliis longe pubescentibus, corolla 45 mm. longa, sed longitudo corollae saepe variat inter 26–45 mm.

Department unknown: "Copiose in Luvini collibus," *Pavón* (type in herb. Delessert). *Mathews* 658.—Cajamarca: Prov. Jaén, San Felipe, *Weberbauer*. Also in Chile and Ecuador. "Contoya."

4. *Lobelia holotricha* E. Wimm. Repert. Sp. Nov. 38: 87. 1935. •

An erect herb, ramose, puberulent; leaves sessile or the lower petioled, obovate-lanceolate to linear, 23 mm. long, 3 mm. wide,

obtuse, gradually narrowed to the base, entire, inconspicuously denticulate, the upper leaves linear, 6–12 mm. long, 1 mm. wide, nearly appressed; flowers in loose, terminal racemes; bracts linear, as long as the pedicels, these 5 mm. long, erect, bearing 2 bracteoles below the calyx; hypanthium obconic; sepals linear, 4–5 mm. long, denticulate; corolla dark blue, slightly puberulent, 10 mm. long; stamen tube 4 mm. long, included in the corolla tube; filaments distinct, as long as the anthers; anther tube puberulent on the back, barbate at the orifice.

Huánuco: Six miles south of Mito, in grasslands, 3,300 meters, 1906, type.

5. **Lobelia nana** HBK. Nov. Gen. & Sp. 3: 317. *pl.* 272. 1819.

A small, perennial herb with prostrate, rooting stems or shoots; leaves radical and cauline, petioled, roundish, spatulate, or obovate-oblong, narrowed at the base into a petiole 2–4 mm. long or rarely to 18 mm. long; leaf blades 5–16 mm. long, 2–8 mm. wide, often short-hirsute above, beneath glabrous, entire, with obsolete callosities at the margin; pedicels radical and axillary, 1-flowered, 3–6 cm. long, glabrous; hypanthium semiovoid; sepals triangular, 3–4 mm. long, entire, erect; corolla bluish, 7–10 mm. long, the upper lobes sublinear, the lower obovate; anther tube glabrous, the 2 lower anthers with 2 longer and a few shorter hairs.

Puno: *Raimondi*. Bolivia (Sorata, *Mandon* 1463); frequent in Mexico.

5a. **Lobelia nana** var. **flagelliformis** Wedd. Chlor. And. 2: 13. 1857. *L. Cymbalaria* Griseb. Goett. Abh. 19: 200. 1874.

Differing from the type only by much longer shoots and pedicels, also the leaves are often longer-petioled and mostly dentate.

Puno: Between Chupa and Huancané, *Raimondi* 9515. Frequent in Bolivia and Argentina, but apparently rare in Peru.

5b. **Lobelia nana** var. **cymbalarioides** (A. Zahlbr.) E. Wimm., comb. nov. *L. cymbalarioides* A. Zahlbr. Bot. Jahrb. 37: 461. 1906. *Pratia boliviensis* A. DC. in DC. Prodr. 7: 340. 1839.

Particularly distinguished from the type and the preceding variety by the short pedicels, 12–16 mm. long.

Junín: Between Yauli and Pachichaca on the Lima-Oroya line, rocky mats, 4,100 meters, *Weberbauer* 324, type of *L. cymbalarioides*. Prov. Tarma, La Oroya, grassy mat on river bank, 3,900 meters, *Weberbauer* 2591b. La Oroya, moist soil, 3,100–4,200 meters, *Kalenborn* 55. Bolivia.

6. *Lobelia subpubera* Wedd. Chlor. And. 2: 14. 1857.

Plants 3–10 cm. high, puberulent or glabrescent, with short stolons; lower leaves spatulate to lanceolate, 10 mm. long, 3–5 mm. wide, acute, narrowed at the base to a short petiole 2–4 mm. long, callous-denticulate, puberulent above or glabrate, glabrous beneath; upper leaves lanceolate to linear, sessile; flowers in terminal, few-flowered racemes; pedicels 4–6 mm. long, about equaling the bracts; hypanthium turbinate; sepals subulate, 3–4 mm. long, erect, ciliate; corolla bluish, 10 mm. long.

Peru: Type form probably occurring. Ecuador (*Jameson 463*).

6a. *Lobelia subpubera* var. *Weberbaueri* (A. Zahlbr.) E. Wimm. Repert. Sp. Nov. 29: 51. 1931. *L. Weberbaueri* A. Zahlbr. Bot. Jahrb. 37: 462. 1906.

Somewhat taller (20 cm.), with larger corolla (12–14 mm. long). Neg. 30980.

Cajamarca: Pass of Coimolache near Hualgayoc, 4,000–4,100 meters, *Weberbauer 3955*, type. Ecuador.

7. *Lobelia tenera* HBK. Nov. Gen. & Sp. 3: 314. 1819.

An erect, glabrous herb 15–30 cm. high with creeping rhizomes and short stolons, producing several stems with few leaves; leaves spatulate to linear (the upper), 20 by 8 mm., 30 by 7 mm., or 15 by 2 mm., obtuse to acute, remotely denticulate, narrowed at the base into a short petiole or sessile; raceme leafless below to the length of 3–6 cm.; flowers racemose, few, on pedicels 11–17 mm. long; bracts linear, denticulate, 2–8 mm. long; hypanthium turbinate; sepals subulate, 3 mm. long, suberect; corolla 10 mm. long, light blue, bluish violet, or lilac; anther tube glabrous. Neg. 9117.

Ayacucho: Prov. Huanta, Cueva de Puitac, *Raimondi 9448*. Puna de Huanta, *Raimondi 10876, 13003*. Yanahuara, grass steppe, 3,800 meters, *Weberbauer 7595*.—Cajamarca: Prov. Chota, between Cajamarca and Yanacancha, *Raimondi 9994*. Celendín, *Osgood & Anderson 56*. Prov. Hualgayoc, above San Miguel, 2,600–2,700 meters, *Weberbauer 3899*.—Cuzco: Piñasnioej, Panticalla Pass, 3,600 meters, *Cook & Gilbert 1823*. Pillahuata, 2,800–3,000 meters, *Pennell 14121*.—Huánuco: Prov. Huamalíes, Altos de Chacabamba, *Raimondi 12350, 12698*. Fifteen miles northeast of Huánuco, common on grassy slopes, 3,750 meters, *1493, 2194*.—Junín: Altos de Tarma, *Raimondi 11802*. Prov. Tarma, mountains east of Palca, 2,700–3,000 meters, *Weberbauer 2452*. La Oroya, *Kalenborn 181*. La Oroya, loose, moist, lime soils, *978*.—Without data: *Mathews 3021*.

7a. *Lobelia tenera* var. *belladonna* E. Wimm., var. nov.

Corolla obscure caeruleo-violacea, basi labii inferioris albo-maculata et viridescenti-tuberculata, lobis 2 superioribus erecto-recurvis, 8 mm. longis, lobis inferioribus obovatis, mucronatis, 8 mm. longis, 6 mm. latis; tubus, staminalis 7 mm. longus.

Ayacucho: Pampalca, between Huanta and Río Apurímac, open hillside, 3,200 meters, *Killip & Smith 22217*, type in Herb. Field Mus.

8. *Lobelia xalapensis* HBK. Nov. Gen. & Sp. 3: 315. 1819. *L. monticola* HBK. op. cit. 316. *L. palmaris* Willd. ex Roem. & Schult. Syst. 5: 56. 1819. *Rapuntium affine* Presl, Prodr. Monogr. Lobel. 25. 1836. *L. mollis* Graham, Edinb. Phil. Journ. 185. 1829. *L. ocimoides* Kunze, Linnaea 24: 178. 1851. *L. Cliffortiana* var. *xalapensis* Gray, Syn. Fl. N. Amer. 2, pt. 1: 7. 1878.

An erect, puberulent or glabrescent, annual herb 19–30 cm. high; leaves remote, petioled, ovate, 3 cm. long, 2.4 cm. wide, obtuse to acute, subcordate to cuneate at the base, dentate to somewhat sinuate, the upper leaves lanceolate, sessile, often subpubescent beneath; flowers in loose racemes; bracts lanceolate to linear, small, often ciliate; pedicels 5–10 mm. long, puberulent; hypanthium very short and turbinate or none; sepals subulate, 2 mm. long; corolla 5–6 mm. long, purplish, lilac, or white; capsule quite or nearly superior, oblong or ovoid, 4–5 mm. long.—The related *L. Cliffortiana* L. is completely glabrous and further distinguished by its inferior ovary and capsule. It is an endemic herb of the West Indian Islands, and often occurs as a cultivated plant. Neg. 9111.

Huánuco: Yanahuanca, 3,000 meters, *1166*.—Junín: La Merced, trail edge, 600 meters, *5351*.—Lima: Viso, 2,700 meters, *763*.—San Martín: Tarapoto, *Spruce 4200*.—Loreto: Above Pongo de Manseriche, *Mexia 6319*. Widely distributed from Mexico to Argentina and Bolivia.

LYSIPOMINAE

Small herbs. Corolla tube entire. Filaments free from or adnate to the corolla. Capsule 1-locular, or perhaps incompletely bilocular in the inferior portion, opening at the apex by an orbicular, convex, deciduous operculum.—The occurrence of this group is confined to the high Andes of South America. It includes only the following genus.

10. LYSIPOMIA HBK.

Lysipoma A. DC. in DC. Prodr. 7: 349. 1839, excl. *Hypsela*; *Rhizocephalum* Wedd.

Leaves rosulate or rarely alternate, entire, stiff or somewhat fleshy. Flowers subsessile or peduncled, crowded at the center of the plant or solitary in the leaf axils. Ovary 1-celled. Hypanthium inferior, mostly obconic. Calyx lobes 5. Corolla tubular, with a 5-parted, subbilabiate limb, the lobes triangular-lanceolate. Stamens connate into a narrow tube, the 2 inferior anthers a little shorter than the others, terminated by 2 bristles or many short hairs. Stigma bilobed, ciliate outside. Capsule obconic or ellipsoid. Seeds numerous, adnate to parietal placentae.

A. Corolla short-tubular, 3–10 mm. long; filaments epigynous or adnate at the base; capsule completely 1-celled.

1. Subgenus *Eulysipomia*.

Plants acaulescent or subacaulescent; leaves stellate-crowded or rosulate.

Peduncles shorter than the flowers or almost obsolete.

Sepals very unequal in length.

Sepals glabrous.

Leaves linear, rounded, like the sepals, at the tip.

1. *L. acaulis*.

Leaves linear-lanceolate, acute like the sepals.

2. *L. acuta*.

Sepals ciliate, acute, narrow-triangular . . . 3. *L. globularis*.

Sepals equal in length.

Leaves lanceolate, petiolate . . . 3. *L. aretioides*.

Leaves linear, sessile . . . 14. *L. pumila*.

Peduncles about as long as or much longer than the flower.

Leaves almost acicular, sessile . . . 4. *L. brachysiphonia*.

Leaves lanceolate, long-petiolate . . . 7. *L. gracilis*.

Plants caulescent.

Stem creeping; leaves sparse.

Sepals unequal; leaves oblanceolate, entire. 13. *L. montioides*.

Sepals equal; leaves spatulate-oblong, remotely crenate, almost abruptly petiolate . . . 5. *L. glandulifera*.

Stem erect, moss-like; leaves imbricate.

Sepals very unequal . . . 15. *L. sphagnophila*.

Sepals equal.

Leaves reflexed; flowers peduncled . . . 11. *L. Lehmannii*.

Leaves erect to spreading; flowers subsessile . . . 8. *L. hirta*.

- A. Corolla tube 14–25 mm. long, the lower portion narrow-cylindric, then ampliate; filaments inserted in the corolla above the middle; capsule 1-locular, apparently 2-locular in the inferior portion.

2. Subgenus *Rhizocephalum*.

Plants acaulescent; rosulate leaves and flowers radical.

Leaves linear, obtuse, entire, glabrous. 12. *L. linearifolia*.

Leaves lanceolate or spatulate-lanceolate, acute, pinnatifid, dentate to entire, mostly pubescent. 9. *L. laciniata*.

Plants caulescent, with short branchlets; leaves dense, acicular.

10. *L. laricina*.

1. **Lysipomia acaulis** HBK. Nov. Gen. & Sp. 3: 321. *pl.* 267. 1819. *Lysipoma acaulis* A. DC. loc. cit. *Lobelia androsacea* Humb. Distr. Georg. Pl. Proleg. 39. 1817 (nomen!) Willd. ex R. & S. Syst. 5: 41. 1819.

Plant 2 cm. high; leaves stellate-crowded, rigid, sessile, linear with rounded tip, slightly dilated at the base and ciliate, 10 mm. long, 1.25 mm. wide; flowers short-peduncled, crowded at the center; sepals unequal, ovate-oblong, rounded, not ciliate, the uppermost 2.5 mm. long, the lowest 1.25 mm. long; corolla sordid-white, 4–5 mm. long.

Junín: Hacienda Arapi, near Yauli, on stony mats, 4,400 meters, *Weberbauer 342* (det. Zahlbruckner). South America, *Humboldt 2252* type; Ecuador.

2. **Lysipomia acuta** E. Wimm., sp. nov.

Plantula 15 mm. alta, acaulis; folia radicalia, stellatim expansa, lineari-lanceolata, cum petiolo marginato, ciliolato 8–12 mm. longa, 1.2 mm. lata, acuta, glabra vel supra evanescenter hirtella; flores in centro crebri, pedunculo primo brevissimo, demum ad 5 mm. elongato; hypanthium obconicum, 5-costatum, glabrum; sepala inequalia, ovato-acuta, 2–1 mm. longa; corolla pallide luteola vel virenti-lutea, 3 mm. longa, lobi anguste triangulares; antherarum tubus nigrescens, circiter 1 mm. longus, antherarum 2 inferiores apice bisetosae; capsula obconica, 1-locularis, 3 mm. longa; semina obscuro-fusca, ellipsoideo-cylindrica, obtusa, scrobiculata, 0.8 mm. longa.

Without locality: *Pavón*.—Ancash: Prov. Huari, Andes west of Pichiu, stony places, 4,400–4,500 meters, *Weberbauer 2944*. Prov. Patasca, Pushuquilca Valley, high Andean grass steppe, 4,100 meters, *Weberbauer 7243*.—Huancavelica: Prov. Tayacaja, mountains on the right side of Río Manatara, south of Surcubamba, 4,200 meters,

Weberbauer 6476.—Junín: Cerro de Pasco, grassy slope, 4,200 meters, 3079.

3. *Lysipomia aretioides* HBK. Nov. Gen. & Sp. 3: 321. *pl. 267, f. 1*. 1819. *Lobelia glandulosa* Willd. ex R. & S. Syst. 5: 41. 1819. *L. Willdenowiana* R. & S. loc. cit. *L. adenophora* R. & S. (nomen!).

A little plant with very abbreviated stem, 1–2 cm. high; leaves stellately crowded, with several flowers in the center, spatulate-lanceolate, 3–5 mm. long, acute, entire, glabrous or subciliate, narrowed into the short, often ciliate petiole; peduncles radical, 1–2 mm. long; hypanthium oblong-obovoid; sepals triangular, acute, ciliate, equal, 1.5 mm. long; corolla brownish yellow, 4 mm. long, the lobes ciliate.

Peru: *Humboldt*, type of *Lobelia glandulosa*. Ecuador (Andes near Loja, *Herb. Kunth*, type).

4. *Lysipomia brachysiphonia* (A. Zahlbr.) E. Wimm., comb. nov. *Rhizocephalum brachysiphonium* A. Zahlbr. Bot. Jahrb. 37: 461. 1906.

Plants caespitose, 2–3 cm. high; leaves dense, sessile, linear, 15–30 mm. long, hardly 1 mm. wide, with 3 callous teeth on each side, glabrous; peduncles radical, 10–15 mm. long; sepals subulate, obtuse, 2 mm. long, with 1–2 callous teeth; corolla pale lilac, 12 mm. long, its tube narrow, 6 mm. long, the upper lobes somewhat narrower than the 3 lower and ciliate; filaments adnate to the corolla base, 7 mm. long, the 2 lower anthers with 2 bristles at the tip. Neg. 9076.

Huánuco: Prov. Huamalíes, mountains southeast of Monzón, in bog, 3,000–3,200 meters, *Weberbauer 3716*, type.

4a. *Lysipomia brachysiphonia* var. *brevifolia* (A. Zahlbr.) E. Wimm., comb. nov. *Rhizocephalum brachysiphonium* var. *brevifolium* A. Zahlbr. loc. cit. *Lysipomia subulata* G. Don, Gen. Syst. 3: 717. 1834(?).

Leaves shorter, 4–10 mm. long; sepals ovate, subacute, with 1, rarely 2 teeth on each side; corolla whitish, brown-dotted at the throat.

Junín: Prov. Tarma, mountains west of Huacapistana, open, swampy places between bushes, 3,000–3,200 meters, *Weberbauer 2081*.—Without locality: *Pavón*.

5. *Lysipomia glandulifera* Schlecht. in Lechler, Berberid. Amer. Austr. 58. 1857 (nomen!). *Pratia glandulifera* Wedd. Chlor.

And. 2: 11. *pl.* 45, *f.* A. 1857. *Hypsela glandulifera* Benth. & Hook. f. Gen. Pl. 2: 559. 1876.

A caespitose plant with creeping and rooting stems; leaves oblong, 3–5 mm. long, 2 mm. wide, obtuse, slightly crenate with callous teeth between the crenations, rarely subentire, narrowed at the base into a white petiole 5–7 mm. long, glabrous; flowers solitary in the leaf axils, short-peduncled; hypanthium oblong-obovoid; sepals sublinear, 1–2 mm. long, obtuse, equal, erect; corolla funnel-shaped, glabrous, 6 mm. long, white, the 2 upper lobes completely white, the lower lobes white with 2 violet dots, in the throat yellow with violet dots; filaments greenish; anther tube violet-black, the 2 lower anthers terminated by 2 bristles; capsule 1-celled; seeds compressed-ovoid, brown, scarcely 1 mm. long. Neg. 9079.

Cuzco: Paso de Tres Cruces, 3,800 meters, *Pennell 13863*.—Puno: Tabina, on the highest mountain ridges, *Lechler 2076*, type. Bolivia.

6. *Lysipomia globularis* E. Wimm., sp. nov.

Plantula caespitosa, consistens e rosulis globularibus consociatis, solo adpressis, 14–22 mm. altis et latis; folia sessilia, rigida, linearia, 5–6 mm. longa, 1.5 mm. lata, apice acuta, integra, glabra vel versus apicem ciliolata, densissima; flores subsessiles, in centro congesti, folia vix superantes; hypanthium obconicum, 2 mm. longum; sepala parum inaequalia, anguste triangularia, acuta, minute ciliata, 1.5 mm. longa; corolla albida(?), glabra, vix 4 mm. longa, tubus corollae fere aequilatus, dorso usque ad medium fere fissus, lobi 5 corollae triangulares, subaequales, 1.5 mm. longi; filamenta in tubum angustum connata, epigyna; antherarum 2 inferiores setis 2 apiculatae; capsula unilocularis, operculo apice dehiscens; semina subglobosa, atro-fusca, tenuiter striata, 1 mm. longa.

Cajamarca: Cutervo, *Raimondi 4694*, type in herb. Berlin.

7. *Lysipomia gracilis* E. Wimm., comb. nov. *Rhizocephalum gracilis* E. Wimm. Repert. Sp. Nov. 26: 4. *pl.* 72, *f.* 18. 1929.

A glabrous plant 8–12 cm. high; leaves radical, rosulate, lanceolate, acute, crenulate, with callous teeth in the crenations, narrowed to the petiole, 15–20 mm. long; peduncles radical, compressed, 6–9 cm. long, amplate at the summit into the obconic hypanthium; calyx lobes subulate, entire, 7 mm. long; corolla reddish(?), pale within, 13 mm. long, the limb bilabiate, 7 mm. long; stamen tube 7–8 mm. long, the 2 lower anthers with 2 bristles at the tip. Neg. 9077.

Libertad: Pacasmayo to Moyobamba, near Frailecocha, 3,300 meters, *Stuebel 26a*, type.

8. *Lysipomia hirta* E. Wimm. Repert. Sp. Nov. 38: 87. 1935.

A sphagnum-like, erect plant 4–8 cm. high; leaves sessile, densely imbricate, rigid, erect to spreading, hirtellous, ovate-lanceolate, acute, entire, 4 mm. long, 1.5 mm. wide; flowers subsessile, axillary, crowded at the summit of the stem; hypanthium obconic, hirtellous; sepals narrowly triangular, 2 mm. long, acute, hirtellous; corolla white(?), glabrous, 7 mm. long, its tube split on the back beyond the middle, the lobes lanceolate; filaments epigynous; 2 lower anthers with 2 bristles at the apex.

Cajamarca: Near Cutervo, *Raimondi* 3161a, type.

9. *Lysipomia laciniata* A. DC. in DC. Prodr. 7: 349. 1839. *Rhizocephalum Candollii* var. *laciniatum* Wedd. Chlor. And. 2: 12. 1857.

Plant rosette-shaped, 3–4 cm. high; leaves lanceolate, 15 mm. long, 3–5 mm. wide, subacute, narrowed at the base into a winged petiole 15–20 mm. long, pinnatifid, sparsely hirtellous, rarely glabrous; peduncles radical, glabrous, 10–14 mm. long; hypanthium obliquely obconic; sepals filiform-subulate, 2–3 mm. long; corolla white with purple dots at the base of the lower corolla lobes, mostly pubescent within, glabrous without, the tube narrow-cylindric, ampliate toward the summit, 15 mm. long, the lobes lance-oblong, about 4 mm. long and 2 mm. wide; filaments inserted in the corolla at the middle; anther tube 3.5 mm. long, the 2 inferior anthers terminated by 2 longer and some short hairs. Neg. 8102.

Peru: Probably. Bolivia (La Paz).

9a. *Lysipomia laciniata* var. *vulgaris* (Wedd.) E. Wimm., comb. nov. *Rhizocephalum Candollii* var. *vulgare* Wedd. Chlor. And. 2: 12. pl. 46, upper f. B. 1857.

Leaves irregularly dentate or subentire, above sparsely pubescent or glabrous.

Ayacucho: Prov. Huanta, Mount Razahuilca, matted puna, 4,300–4,400 meters, *Weberbauer* 7496.—Cuzco: Paucartambo Valley, Hacienda Lauramar, 4,500 meters, *Herrera* 2320.—Puno: Ayapata, damp soil, *Lechler* 1956. Apacheta, between Ayapata and Ituata, *Raimondi* 11597. Bolivia; Colombia.

10. *Lysipomia laricina* E. Wimm., nom. nov. *Lobelia subulata* Benth. Pl. Hartweg. 137. 1844. *Rhizocephalum subulatum* Benth. & Hook. f. Gen. Pl. 2: 549. 1876.

A caespitose plant, 2–3 cm. high, with short stem and short branchlets, these decumbent and toward the ends densely leafy; leaves

sessile, linear-subulate, about 12 mm. long, hardly 1 mm. wide, subobtuse, the margin revolute, entire, glabrous; flowers sessile, solitary in the leaf axils; hypanthium oblong-obconic; sepals subulate, 3 mm. long, erect, glabrous; corolla glabrous, white, 15 mm. long, its tube narrowly cylindric, ampliate toward the throat, the limb bilabiate, the lobes narrow-triangular, the lower lobes purplish-striate at the base; filaments adnate to the corolla at the middle, the 2 lower anthers terminated by 2 bristles and some shorter hairs.

Ecuador: Near Loja, Cerro de San Francisco, *Hartweg 773*, type. South America, *André K1523*.

Lysipomia subulata G. Don differs, according to the author, by its subulate radical leaves, hairy at the base, and the flowers on peduncles 2.5 cm. long, perhaps also by the short-tubular corolla.

11. *Lysipomia Lehmannii* Hieron. Repert. Sp. Nov. 14: 185. 1915.

An erect, sphagnum-like, simple plant 8–14 cm. high; leaves sessile, reflexed, dense, rigid, with short, appressed hairs on the upper surface, linear, 5 mm. long, 0.75 mm. wide, obtuse; flowers at the top of the stem; the pedicels solitary in the leaf axils, 7–8 mm. long; hypanthium obconic; sepals oblong-linear, 2 mm. long, subacute, glabrous; corolla white and often pink-suffused, somewhat funnel-shaped, 9 mm. long; 2 lower anthers biaristate. Neg. 30981.

Peru: Probably. Ecuador (eastern Andes of Loja, in wet places on the ridges, 3,000–3,500 meters, *Lehmann 4822*, type).

12. *Lysipomia linearifolia* E. Wimm., sp. nov. *Rhizocephalum Candollii* var. *ciliatum* Wedd. Chlor. And. 2: 12. pl. 46, lower f. B. 1857(?).

Radix fibrillosa; folia radicalia, tenuia, glaberrima, linearia, 3–6 cm. longa et 1–1.5 mm. lata, obtusiuscula, integra, non ciliata; pedunculi solitarii, axillares, 5–25 mm. longi, inconspicue fere trans-euntes in calicem; sepala tenera, sublinearia, 1–2 mm. longa; corolla longe tubulosa, extus glabra, 35 mm. longa, tubus corollae in parte inferiore angustissime cylindricus (24 cm. longus et 1 mm. latus), in superiore parte infundibulariter ampliatus (6 mm. longus, 4 mm. latus), limbus 5-partitus, bilabiatus, intus sparse pubescens, lobi 2 superiores lanceolati, ciliati, albi(?), lobi 3 inferiores oblongi, acuti, non ciliati, intus versus faucem purpureo-maculati, circiter 5 mm. longi; filamenta parte superiore, corollae inserta; antherarum tubus 2 mm. fere longus, nigrescens, antherae 2 inferiores setis 2 munitae.

Puno: Ayapata, *Raimondi*.—Bolivia: North Yungas, pass toward Santillani, 4,100 meters, *Buchtien* 737. Unduavi, 3,400 meters, *Buchtien* 9063, type in herb. Mus. Vienna. Unduavi, 2,400 meters, *Rusby* 2445.

13. *Lysipomia montioides* HBK. Nov. Gen. & Sp. 3: 320. pl. 266, f. 2. 1819. *Lysipoma montioides* A. DC. in DC. Prodr. 7: 349. 1839. *Lobelia limoselloides* Willd. ex. R. & S. Syst. 5: 41. 1819.

A small, creeping, rooting, glabrous plant; leaves thickish, entire, lance-spatulate, obtuse, 2–4 mm. long, 1–1.5 mm. wide, narrowed at the base into a marginate petiole 2–4 mm. long; pedicels solitary in the leaf axils, 3–5 mm. long; sepals ovate, obtuse, somewhat unequal, about 1 mm. long, shorter than the obovoid hypanthium; corolla short-tubular, 3 mm. long, with a somewhat bilabiate limb; 2 lower anthers biaristate. Neg. 9080.

South America: *Humboldt*, type of *Lobelia limoselloides*. Ecuador; Colombia.

14. *Lysipomia pumila* (Wedd.) E. Wimm., comb. nov. *Rhizocepalum pumilum* Wedd. Chlor. And. 2: 13. 1857.

A glabrous plant 2 cm. high; leaves radical, thickish or rigid, linear, 15 mm. long, 1–2 mm. wide, obtuse with callous apex, entire; peduncles radical, 2–4 mm. long, hypanthium obovoid; sepals narrowly triangular, with an obtuse, callous tip, 1 mm. long; corolla funnel-shaped, 11 mm. long, white, purple-striate in the throat, the limb bilabiate; 2 lower anthers with 2 longer and many short hairs at the tip. Neg. 30982.

Lima: High Andes above Lima, in bogs, 4,500 meters, *Weberbauer* 5155. Bolivia.

15. *Lysipomia sphagnophila* Griseb. in Lechler, Berberid. Amer. Austr. 58. 1857 (nomen!).

Planta erecta, parce ramosa, sphagniformis, 3–6 cm. alta; caules dense foliati; folia rigida, linearia, 5–10 mm. longa, 1–2 mm. lata, apice obtusa, basi saepe paullum dilatata, integerrima, plus minus ciliata, erecta usque patula; flores in vertice caulis congesti; pedicelli axillares, 2–5 mm. longi, ancipites; hypanthium oblique obconicum, 2–3 mm. longum; sepala valde inaequalia, 2–0.25 mm. longa, triangulari-linearia, obtusa, ciliolata vel glabrata; corolla viridescens-lutea, 2–3 mm. longa, bilabiata, lobi superiores parum longiores; antherarum tubus nigrescens, vix 1 mm. longus, antherae 2 inferiores setulis terminatae. Neg. 9081.

Puno: Sachapata, in sphagnum, *Lechler 2641*, type.—Cuzco: Paso de Tres Cruces, Cerro de Cusilluyoc, open, grassy paramo, 3,800–3,900 meters, *Pennell 13865*.

CALYCERACEAE

This small family, with flowers aggregate into heads and more or less mixed with bracts or paleae in the manner of the Compositae, from which, however, it differs in having the ovule suspended from the tip of the cell, fruits or achenes topped by the calyx, etc., is represented in Peru apparently by only four species, although there are a number in Chile and Argentina, some of them extending into Bolivia. Perhaps the best account of the family as yet is by Miers, *Contr. Bot.* 2: 1 et seq., who, however, divides it into several more genera than the four ordinarily recognized today: *Acicarpa*, *Boopis*, *Moschopsis*, and *Calycera*. As all the genera may be found eventually in Peru, it may be remarked that *Boopis* resembles *Calycera* but that in *Boopis* the fruits are all alike, the calyx not changing.

The well known teasel, *Dipsacus fullonum* L., with rigid, ovoid heads, and *Scabiosa atropurpurea* L., "ambarina," often cultivated in flower gardens, with finely divided leaves and soft heads of pale purple or white flowers, may both occur occasionally as escapes. They are placed in a family separated from the Calyceraceae because the filaments are not united at the base into a ring, the Dipsacaceae.

Outer achenes concrete, bearing spines at the apex 1. *Acicarpa*.

Outer achenes free.

Achenes, at least the outer ones, armed with spines . . 2. *Calycera*.

Achenes unarmed 3. *Moschopsis*.

1. ACICARPHA Juss.

Annual or perennial herbs with spatulate or obovate leaves. Involucral bracts united below with the receptacle, this sometimes provided with small palae. Central flowers sterile, the outer 2 or 3 series maturing more or less united achenes which are somewhat sunken in the conic or elongate receptacle, and crowned with the definitely lengthened, more or less spinescent calyx teeth.—Robert Brown renamed the genus *Acicarpa* as more appropriate, which action was followed by Miers.

Plants procumbent, the leaves entire *A. procumbens*.

Plants erect, the leaves toothed or laciniate *A. tribuloides*.

Acicarpha procumbens Less. *Linnaea* 6: 527. 1831.

Glabrous, usually with many much branched stems; leaves narrowly spatulate, attenuately petiolate, 2.5–4 cm. long, 4–8 mm. wide, glaucous, 3-nerved; peduncles opposite the leaves, about 2 cm. long, the solitary head 1 cm. thick, the 5–6 involucre leaves about 4 mm. long; achenes corniculate-spinose, 5-winged, the spines about 1 mm. long.—*Acicarpha spathulata* R. Br., similar, has broader leaves and spines about 1 cm. long. Illustrated, Mart. Fl. Bras. 6, pt. 4: pl. 104.

Cuzco: In the punas, Prov. Paucartambo (*Herrera*). Brazil; Argentina. "Chchiqui."

Acicarpha tribuloides Juss. *Ann. Mus. Hist. Nat. Paris* 2: 348. pl. 58. 1803.

Leaves sinuately or laciniately dentate, reticulate, cuneate-oblong or the lower spatulate, the upper sessile; larger leaves to 2 cm. wide or wider; involucre leaves 5 and 1–2 cm. long, the globose head, excluding the spines, about 6 mm. thick, the spines 4 mm. long.—Illustrated, Miers, *Contr. Bot.* 2: pl. 52. Flowers pale greenish yellow.

Cuzco: Near Cuzco (*Herrera* 16). Sacsahuamán, 3,500 meters, grassy places on hill, *Pennell* 13584; *Soukup* 46. Extending to Brazil and Uruguay. "Estrella-quisca."

2. CALYCERA Cav.

Similar to *Acicarpha*, but the receptacle smaller; flowers often few, fertile; achenes free, part of them armed.—The name was originally written *Calicera*.

Calycera pulvinata Rémy, *Ann. Sci. Nat.* III. 6: 352. 1846. *Anomocarpus pulvinatus* Miers, *Contr. Bot.* 2: 31. 1860.

Stemless, the branches of the woody rhizomes terminating in a rosette of leaves in the center of which develops the head of densely glomerate flowers; leaves long-petioled, 2–5 cm. long, oblong-obovate, serrate or crenate; involucre campanulate, with 5–7 irregular lobes; flowers perfect, separated by narrow bracts; calyx teeth 5, in some flowers becoming long, sharp spines.—Illustrated, Wedd. *Chlor. And.* 2: pl. 43.

Cuzco: High mountains (*Gay*). Bolivia.

3. MOSCHOPSIS Phil.

Several species of the genus are known, chiefly in Patagonia.

Moschopsis monocephala (Phil.) Reiche, Bot. Jahrb. 29: 118. 1900. *Boopis monocephala* Phil. Anal. Mus. Nac. Chile, Bot. 1891: 30. 1891.

Plants perennial, stemless; leaves all radical, numerous, forming a large rosette, spatulate, with long, broad petioles, rounded at the apex, coarsely dentate, the teeth tipped with short spines, glabrous or nearly so; heads very large, sessile, as much as 6 cm. broad; flowers white.

Moquehua: Cordillera east of Carumas, 4,500 meters, prostrate on sandy soil, *Weberbauer 7357*. Also in Chile.

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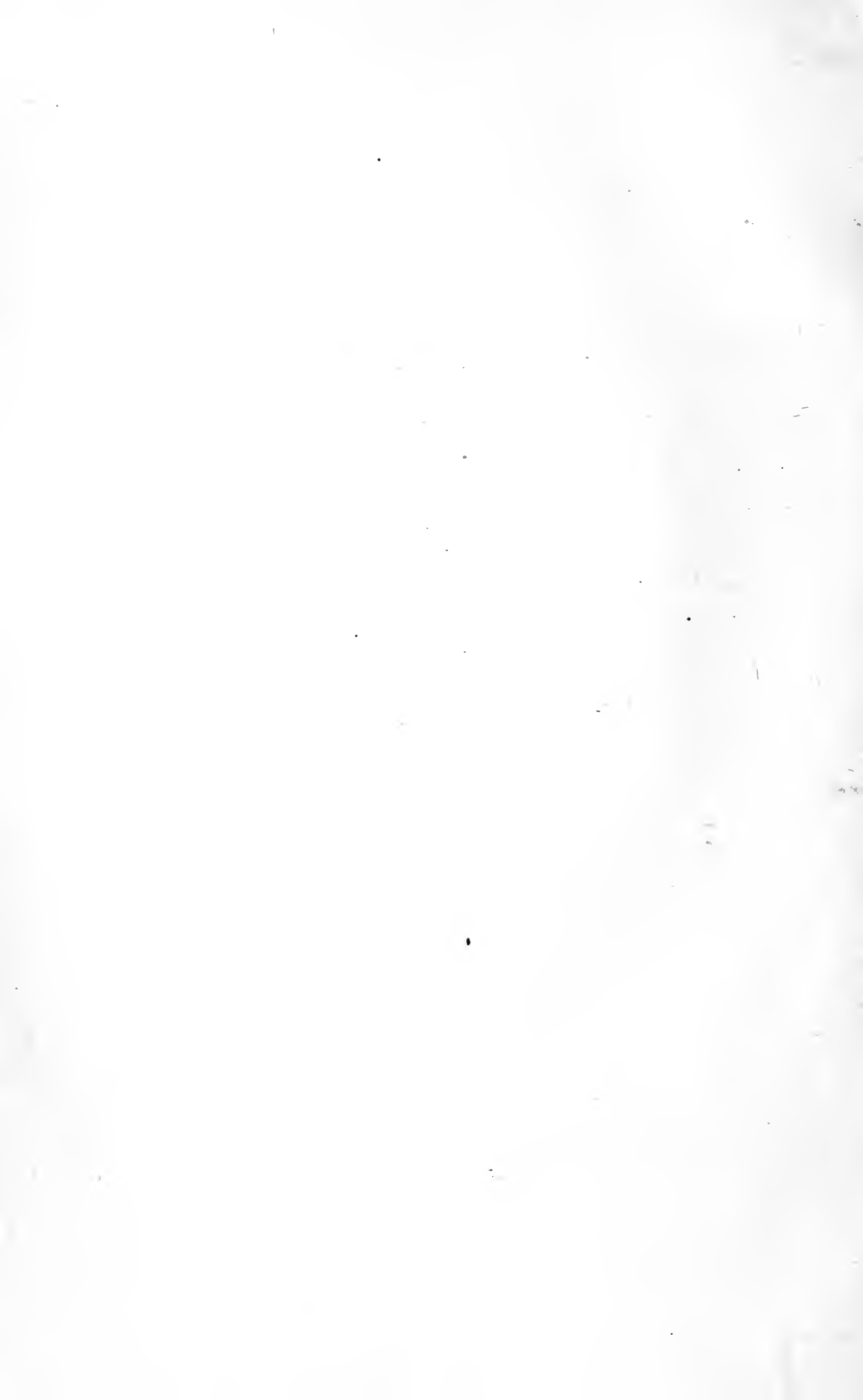
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